Chapter 6. Solving Linear Inequalities

Ex. 6.2

Answer 1CU.

Consider the following inequality:

$-7r \le 28$

The objective is to find why to use either Multiplication Property of inequalities or the Division Property of inequalities to solve.

For any such inequalities where a single variable is defined on either side of the inequality, the addition and subtraction cannot be possible, hence we generally use either multiplication property or division property.

In this case divide both sides by -7 and change the inequality symbol.

$$-7r \le 28$$
$$\frac{-7r}{-7} \le -\frac{28}{7}$$
$$r \ge -4$$

The solution set represents $\{r \mid r \ge -4\}$.

Answer 1PQ.

Consider the following inequality:

$h - 16 > -13$

The objective is to solve the inequality and graph it on the number line.

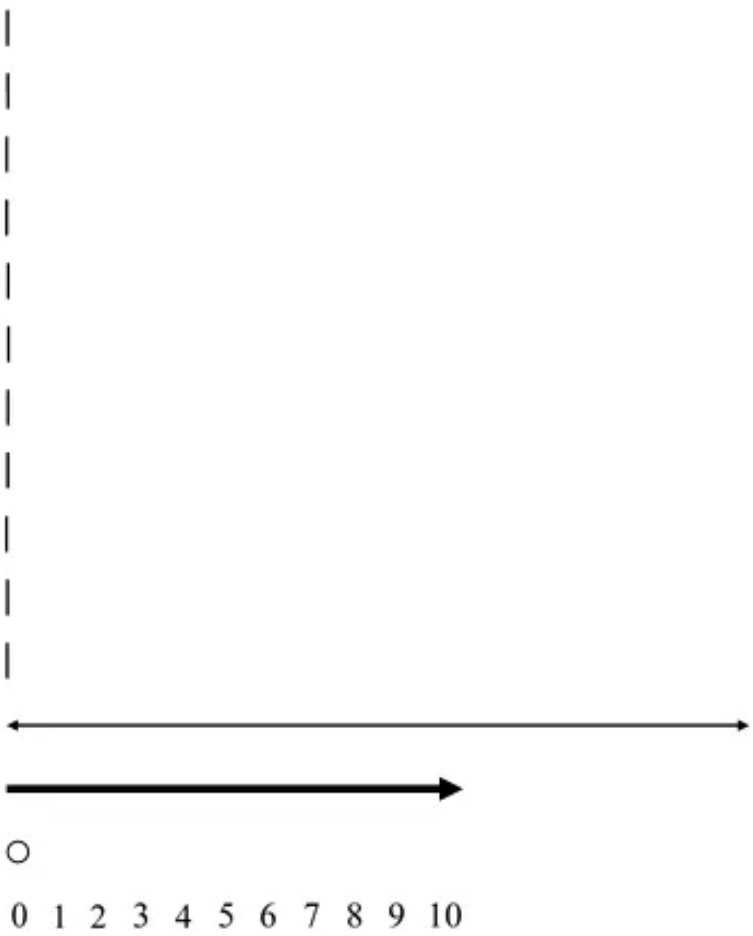
Simply the given expression

Add 16 on both sides

$$h - 16 > -13$$
$$h - 16 + 16 > -13 + 16$$
$$h > 3$$

The solution set represents $\boxed{\{h \mid h > 3\}}$

The inequality can be represented in the graph with the open circle and heavy arrow mark right to the number 3.



Answer 2CU.

Consider the following inequality:

$$\frac{3}{4}c > 9$$

The objective is to find similar inequality.

If we multiply any number to the inequality on both sides the resultant inequality can also be true.

Multiply 3 on both sides.

The inequalities can be expressed as

$$\frac{3}{4}c \times 3 > 9 \times 3$$

$$\frac{9}{4}c > 27$$

Therefore, the inequality that is equivalent to the given inequality can be $\boxed{\frac{9}{4}c > 27}$.

Answer 2PQ.

Consider the following inequality:

$r+3\le -1$

The objective is to solve the inequality and graph it on the number line.

Simply the given expression

Subtract 3 on both sides

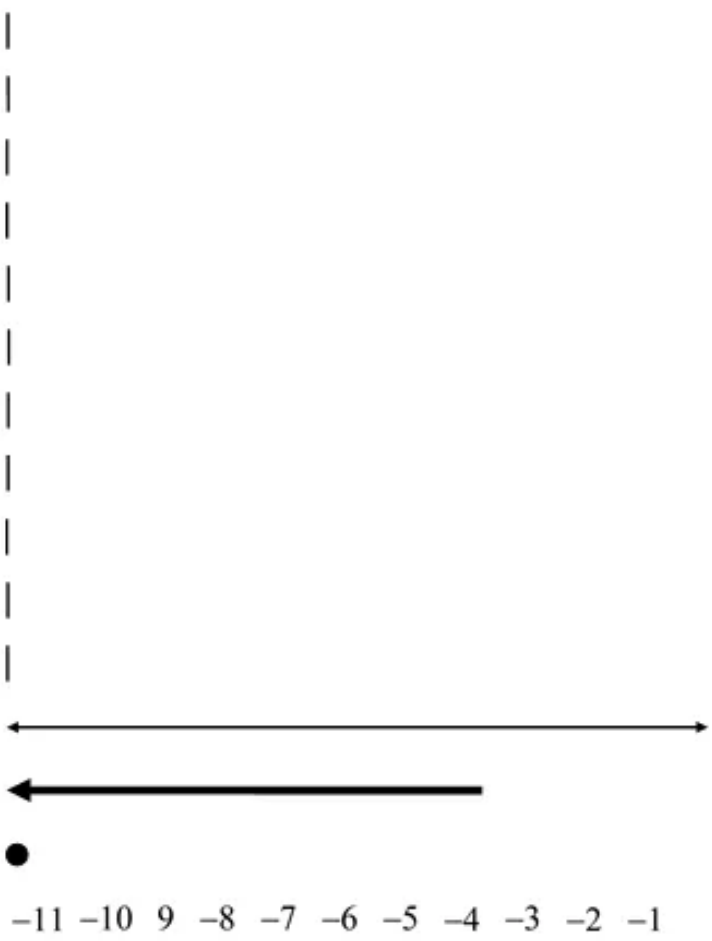
$r+3\le -1$

$r+3-3\le -1-3$

$r\le -4$

The solution set represents $\boxed{\{r\mid r\le -4\}}$

The inequality can be represented in the graph with the dotted circle and heavy arrow mark left to the number -4.



Answer 3CU.

Consider the following inequality:

$-9b \le 18$

The objective is to find the error in solving between Ilonia and Zachary.

Whenever a true inequality is divided by the same negative number, the direction of the inequality symbol should be reversed.

Simplify the inequality by dividing both sides by -9 and change the inequality symbol.

The inequalities can be expressed as

$$-9b \le 18$$
$$\frac{-9b}{-9} \ge \frac{18}{-9}$$
$$b \ge -2$$

The solution set represents $\{b \mid b \ge -2\}$.

Hence Ilonis is correct, since the solution set matches with her solving. Zachary forgot to reverse the inequality sign even after dividing with -9.

Therefore, Ilonis is correct.

Answer 3PQ.

Consider the following inequality:

$4 \ge p + 9$

The objective is to solve the inequality and graph it on the number line.

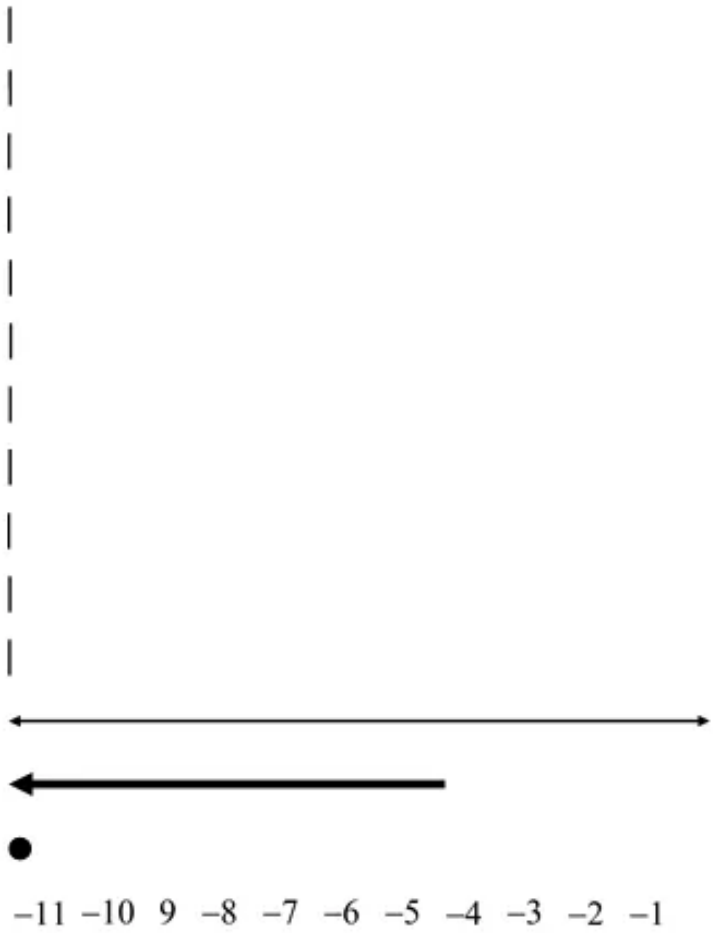
Simply the given expression

Subtract 9 on both sides

$$4 \ge p + 9$$
$$4 - 9 \ge p + 9 - 9$$
$$-5 \ge p$$
$$p \le -5$$

The solution set represents $\boxed{\{p \mid p \le -5\}}$

The inequality can be represented in the graph with the dotted circle and heavy arrow mark left to the number -5.



Answer 4CU.

Consider the following inequality:

$$7n \geq 14$$

The objective is to represents the given inequality in statement form.

(a)

Seven times a number is at least 14.

This statement can be expressed as

$$\underbrace{\text{seven times}}_{7n}\ \underbrace{\text{at least}}_{\geq}\ \underbrace{\text{fourteen}}_{14}$$

$$7n \geq 14$$

Therefore, the statement is the answer as it satisfies the given inequality. $\boxed{a}$

(b) Seven times a number is greater than 14.

This statement can be expressed as

$$\underbrace{\text{seven times}}_{7n}\ \underbrace{\text{greater than}}_{>}\ \underbrace{\text{fourteen}}_{14}$$

$$7n > 14$$

Therefore, the statement doesn't satisfy the given inequality.

(c) Seven times a number is at most 14.

This statement can be expressed as

$$\underbrace{\text{seven times}}_{7n}\ \underbrace{\text{at most}}_{\leq}\ \underbrace{\text{fourteen}}_{14}$$

$$7n \leq 14$$

Therefore, the statement doesn't satisfy the given inequality.

(d) Seven times a number is lesser than 14

This statement can be expressed as

$$\underbrace{\text{seven times}}_{7n}\ \underbrace{\text{lesser than}}_{<}\ \underbrace{\text{fourteen}}_{14}$$

$$7n < 14$$

Therefore, the statement doesn't satisfy the given inequality.

Hence the answer is $\boxed{(a)}$.

Answer 4PQ.

Consider the following inequality:

$$-3 < a - 5$$

The objective is to solve the inequality and graph it on the number line.

Simply the given expression

Add 5 on both sides

$$-3 < a - 5$$

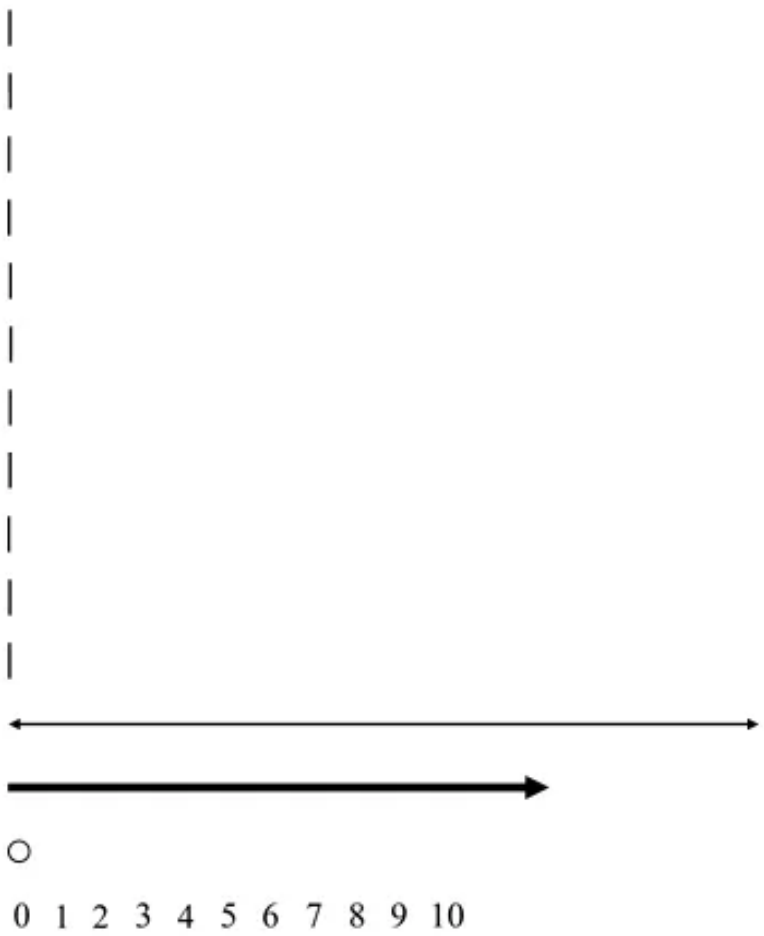
$$-3 + 5 < a - 5 + 5$$

$$2 < a$$

$$a > 2$$

The solution set represents $\boxed{\{a \mid a > 2\}}$

The inequality can be represented in the graph with the open circle and heavy arrow mark right to the number 2.



Answer 5CU.

The objective is to find which inequality satisfies the inequality represented by five times a number is less than 25.

(a) $5n > 25$

This inequality is expressed as

$$\underbrace{\text{Five times}}_{5n}\ \underbrace{\text{is greater than}}_{>}\ \underbrace{\text{Twenty five}}_{25}$$

$$5n > 25$$

Therefore, this inequality doesn't satisfy the given statement.

(b) $5n \geq 25$

This inequality is expressed as

$$\underbrace{\text{Five times}}_{5n}\ \underbrace{\text{is at least}}_{\geq}\ \underbrace{\text{Twenty five}}_{25}$$

$$5n \geq 25$$

Therefore, this inequality doesn't satisfy the given statement.

(c) $5n < 25$

This inequality is expressed as

$$\underbrace{\text{Five times}}_{5n}\ \underbrace{\text{is less than}}_{<}\ \underbrace{\text{Twenty five}}_{25}$$

$$5n < 25$$

Therefore, this inequality satisfies the given statement.

(d) $5n \leq 25$

This inequality is expressed as

$$\underbrace{\text{Five times}}_{5n}\ \underbrace{\text{is no more than}}_{\leq}\ \underbrace{\text{Twenty five}}_{25}$$

$$5n \leq 25$$

Therefore, this inequality doesn't satisfy the given statement.

Hence, the answer is $\boxed{c}$.

Answer 5PQ.

Consider the following inequality:

$$7g \leq 6g - 1$$

The objective is to solve the inequality and graph it on the number line.

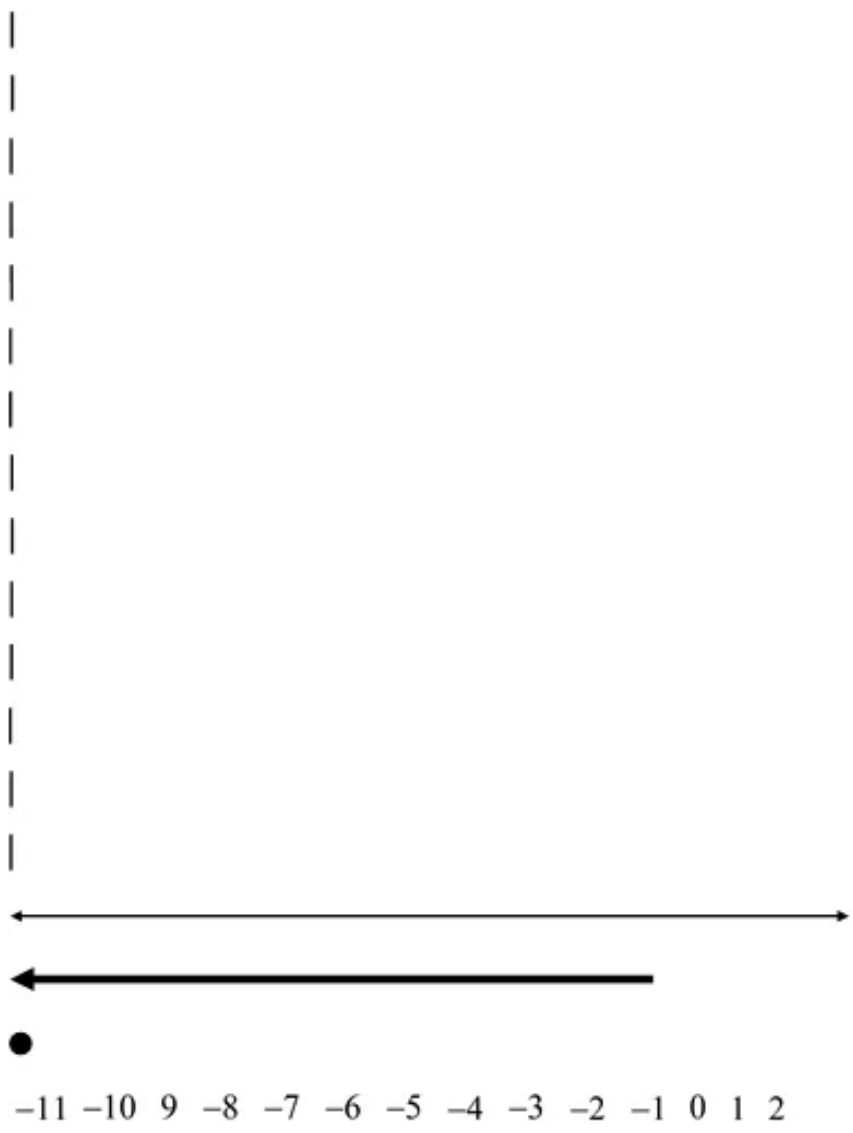
Simply the given expression

Subtract 6g on both sides

$$7g \leq 6g - 1$$
$$7g - 6g \leq 6g - 1 - 6g$$
$$g \leq -1$$

The solution set represents $\boxed{\{g \mid g \leq -1\}}$

The inequality can be represented in the graph with the dotted circle and heavy arrow mark left to the number -1.



Answer 6CU.

Consider the following inequality:

$$-15g > 75$$

The objective is to solve the inequality and check the solution.

Whenever a true inequality is divided by the same negative number, the direction of the inequality symbol should be reversed.

Simplify the inequality by dividing both sides by -15 and change the inequality symbol.

The inequalities can be expressed as

$$-15g > 75$$
$$\frac{-15g}{-15} < \frac{75}{-15}$$
$$g < -5$$

Therefore, the solution set represents as $\boxed{\{g \mid g < -5\}}$.

In order to check the solution consider $g=-10$

Substitute $g=-10$ in the given inequality

$-15g>75$

$-15\times-10>75$

$150>75$

This satisfies the inequality.

Now consider $g=-5$

Substitute $g=-5$ in the given inequality

$-15g>75$

$-15\times-5>75$

$75>75$

This is not true.

Hence, always the solution set is represented as $\{g\,|\,g<-5\}$.

Answer 6PQ.

Consider the following inequality:

$15z\geq 105$

The objective is to solve the inequality and check the solution.

Simplify the inequality by dividing both sides with 15.

The inequalities can be expressed as

$15z\geq 105$

$\frac{15z}{15}\geq\frac{105}{15}$ $7\times15=105$

$z\geq 7$

Therefore, the solution set represents as $\boxed{\{z\,|\,z\geq 7\}}$.

In order to check the solution consider $z=7$

Substitute $z=7$ in the given inequality

$15z\geq 105$

$15\times7\geq 105$

$105\geq 105$

The value of $z=7$ satisfies the given inequality.

Now consider $z = 5$

Substitute $z = 5$ in the given inequality

$$15z \geq 105$$
$$15 \times 5 \geq 105$$
$$75 \not\geq 105$$

This doesn't satisfy the given inequality.

Hence, always the solution set is represented as $\{z \mid z \geq 7\}$.

Answer 7CU.

Consider the following inequality:

$$\frac{t}{9} < -12$$

The objective is to solve the inequality and check the solution.

Simplify the inequality by multiplying both sides by 9.

The inequalities can be expressed as

$$\frac{t}{9} < -12$$
$$\frac{t}{9} \times 9 < -12 \times 9$$
$$t < -108$$

Therefore, the solution set represents as $\boxed{\{t \mid t < -108\}}$.

In order to check the solution consider $t = 90$

Substitute $t = 90$ in the given inequality

$$\frac{t}{9} < -12$$
$$\frac{90}{9} < -12$$
$$10 \not< -12$$

This is not true.

Now consider $t = -117$

Substitute $t = -117$ in the given inequality

$$\frac{t}{9} < -12$$
$$\frac{-117}{9} < -12$$
$$-13 < -12$$

This satisfies the given inequality.

Hence, always the solution set is represented as $\{t \mid t < -108\}$.

Answer 7PQ.

Consider the following inequality:

$$\frac{v}{5} < 7$$

The objective is to solve the inequality and check the solution.

Simplify the inequality by multiplying both sides with 5.

The inequalities can be expressed as

$$\frac{v}{5} < 7$$

$$\frac{v}{5} \times 5 < 7 \times 5 \quad 7 \times 5 = 35$$

$$v < 35$$

Therefore, the solution set represents as $\boxed{\{v \mid v < 35\}}$.

In order to check the solution consider $v = 20$

Substitute $v = 20$ in the given inequality

$$\frac{v}{5} < 7$$

$$\frac{20}{5} < 7$$

$$4 < 7$$

The value of $v = 20$ satisfies the given inequality.

Now consider $v = 40$

Substitute $v = 40$ in the given inequality

$$\frac{v}{5} < 7$$

$$\frac{40}{5} < 7$$

$$8 \not< 7$$

This doesn't satisfy the given inequality.

Hence, always the solution set is represented as $\{v \mid v < 35\}$.

Answer 8CU.

Consider the following inequality:

$$-\frac{2}{3}b \le -9$$

The objective is to solve the inequality and check the solution.

Whenever a true inequality is multiplied or divided by the same negative number, the direction of the inequality symbol should be reversed.

Simplify the inequality by multiplying both sides by $-\frac{3}{2}$ and change the inequality symbol.

The inequalities can be expressed as

$$-\frac{2}{3}b \le -9$$

$$-\frac{\cancel{2}}{\cancel{3}}b \times -\frac{\cancel{3}}{\cancel{2}} \ge -9 \times -\frac{3}{2}$$

$$b \ge \frac{27}{2}$$

Therefore, the solution set represents as $\boxed{\{b \mid b \ge \frac{27}{2}\}}$.

In order to check the solution consider $b = 3$

Substitute $b = 3$ in the given inequality

$$-\frac{2}{3}b \le -9$$

$$-\frac{2}{3} \times 3 \le -9$$

$$-2 \not\le -9$$

This is not true.

Now consider $b = 18$

Substitute $b = 18$ in the given inequality

$$-\frac{2}{3}b \le -9$$

$$-\frac{2}{\cancel{3}} \times 1\cancel{8}^{6} \le -9$$

$$-12 \le -9$$

This satisfies the given inequality.

Hence, always the solution set is represented as $\{b \mid b \ge \frac{27}{2}\}$.

Answer 8PQ.

Consider the following inequality:

$$-\frac{3}{7}q > 15$$

The objective is to solve the inequality and check the solution.

Whenever a true inequality is multiplied or divided by the same negative number, the direction of the inequality symbol should be reversed.

Simplify the inequality by multiplying both sides by -7/3 and change the inequality symbol.

The inequalities can be expressed as

$$-\frac{3}{7}q > 15$$

$$-\frac{\cancel{3}}{\cancel{7}}q \times -\frac{\cancel{7}}{\cancel{3}} < 1\overset{5}{\cancel{5}} \times -\frac{7}{\cancel{3}}$$

$$q < -35$$

Therefore, the solution set represents as $\boxed{\{q \mid q < -35\}}$.

In order to check the solution consider $q = -42$

Substitute $q = -42$ in the given inequality

$$-\frac{3}{7} \times -42 > 15$$

$$-\frac{3}{7} \times -\overset{6}{\cancel{4}}2 > 15$$

$$18 > 15$$

The value of $q = -42$ satisfies the given inequality.

Now consider $q = 7$

Substitute $q = 7$ in the given inequality

$$-\frac{3}{7} \times 7 > 15$$

$$-\frac{3}{7} \times 7 > 15$$

$$-3 \not> 15$$

This doesn't satisfy the given inequality.

Hence, always the solution set is represented as $\{q \mid q < -35\}$.

Answer 9CU.

Consider the following inequality:

$25f \geq 9$

The objective is to solve the inequality and check the solution.

Simplify the inequality by dividing both sides by 25.

The inequalities can be expressed as

$$25f \geq 9$$
$$\frac{25f}{25} \geq \frac{9}{25}$$
$$f \geq \frac{9}{25}$$

Therefore, the solution set represents as $\boxed{\{f \mid f \geq \frac{9}{25}\}}$.

In order to check the solution consider $f = 1$

Substitute $f = 1$ in the given inequality

$$25f \geq 9$$
$$25 \times 1 \geq 9$$
$$25 \geq 9$$

The value of $f = 1$ satisfies the given inequality.

Now consider $f = -1$

Substitute $f = -1$ in the given inequality

$$25f \geq 9$$
$$25 \times -1 \geq 9$$
$$-25 \not\geq 9$$

This doesn't satisfy the given inequality.

Hence, always the solution set is represented as $\{f \mid f \geq \frac{9}{25}\}$.

Answer 9PQ.

Consider the following inequality:

$-156 < 12r$

The objective is to solve the inequality and check the solution.

Simplify the inequality by multiplying both sides by 12.

The inequalities can be expressed as

$-156 < 12r$

$\frac{-156}{12} < \frac{12r}{12}$ $12 \times 13 = 156$

$-13 < r$

$r > -13$

Therefore, the solution set represents as $\boxed{\{r \mid r > -13\}}$.

In order to check the solution consider $r = -12$

Substitute $r = -12$ in the given inequality

$-156 < 12r$

$-156 < 12 \times -12$ $12 \times 12 = 144$

$-156 < -144$

The value of $r = -12$ satisfies the given inequality.

Now consider $r = 12$

Substitute $r = 12$ in the given inequality

$-156 < 12r$

$-156 < 12 \times 12$

$-156 \not< 144$

This doesn't satisfy the given inequality.

Hence, always the solution set is represented as $\{r \mid r > -13\}$.

Answer 10CU.

The objective is to write the inequality for the given sentence.

Consider the number as n and opposite of four times a number is more than (greater than) 12.

This can be expressed as following inequality

$-4n > 12$

Whenever a true inequality is divided by the same negative number, the direction of the inequality symbol should be reversed.

Simplify the inequality by dividing both sides by -4 and change the inequality symbol.

The inequalities can be expressed as

$$-4n > 12$$

$$\frac{-4n}{-4} < \frac{12}{-4}$$

$$n < -3$$

Therefore, the solution set represents as $\boxed{\{n \mid n < -3\}}$.

In order to check the solution consider $n = 1$

Substitute $n = 1$ in the given inequality

$$-4n > 12$$

$$-4 \times 1 > 12$$

$$-4 \not> 12$$

The value of $n = 1$ doesn't satisfy the given inequality.

Now consider $n = -4$

Substitute $n = -4$ in the given inequality

$$-4n > 12$$

$$-4 \times -4 > 12$$

$$16 > 12$$

This satisfies the given inequality.

Hence, always the solution set is represented as $\{n \mid n < -3\}$.

Answer 109Q.

Consider the following inequality:

$$-\frac{2}{5}w \le -\frac{1}{2}$$

The objective is to solve the inequality and check the solution.

Whenever a true inequality is multiplied or divided by the same negative number, the direction of the inequality symbol should be reversed.

Simplify the inequality by multiplying both sides by $-\frac{5}{2}$ and change the inequality symbol.

The inequalities can be expressed as

$$-\frac{2}{5}w \le -\frac{1}{2}$$

$$-\frac{\cancel{2}}{\cancel{5}}w \times -\frac{\cancel{5}}{\cancel{2}} \ge -\frac{1}{2} \times -\frac{5}{2}$$

$$w \ge \frac{5}{4}$$

Therefore, the solution set represents as $\boxed{\{w \mid w \ge \frac{5}{4}\}}$.

In order to check the solution consider $w = \frac{5}{2}$

Substitute $w = \frac{5}{2}$ in the given inequality

$$-\frac{2}{5}w \le -\frac{1}{2}$$

$$-\frac{\cancel{2}}{\cancel{5}} \times \frac{\cancel{5}}{\cancel{2}} \le -\frac{1}{2}$$

$$-1 \le -\frac{1}{2}$$

The value of $w = \frac{1}{2}$ satisfies the given inequality.

Now consider $w=\frac{1}{2}$

Substitute $w=\frac{1}{2}$ in the given inequality

$$-\frac{2}{5}w\le-\frac{1}{2}$$
$$-\frac{\cancel{2}}{5}\times\frac{1}{\cancel{2}}\le-\frac{1}{2}$$
$$-\frac{1}{5}\not\le-\frac{1}{2}$$

This doesn't satisfy the given inequality.

Hence, always the solution set is represented as $\{w\,|\,w\ge\frac{5}{4}\}$.

Answer 11CU.

The objective is to write the inequality for the given sentence.

Consider the number as n and half the number is at least (greater than or equal to) 26.

This can be expressed as following inequality

$$\frac{n}{2}\ge 26$$

Simplify the given inequality by multiplying both sides by 2.

The inequalities can be expressed as

$$\frac{n}{2}\ge 26$$
$$\frac{n}{2}\times 2\ge 26\times 2$$
$$n\ge 52$$

Therefore, the solution set represents as $\boxed{\{n\,|\,n\ge 52\}}$.

In order to check the solution consider $n = 50$

Substitute $n = 50$ in the given inequality

$$\frac{n}{2} \geq 26$$
$$\frac{50}{2} \geq 26$$
$$25 \not\geq 26$$

The value of $n = 50$ doesn't satisfy the given inequality.

Now consider $n = 52$

Substitute $n = 52$ $n = -4$ in the given inequality

$$\frac{n}{2} \geq 26$$
$$\frac{52}{2} \geq 26$$
$$26 \geq 26$$

This satisfies the given inequality.

Hence, always the solution set is represented as $\{n \mid n \geq 52\}$.

Answer 12CU.

The objective is to check which inequality does not satisfy the solution set $\{x \mid x > 4\}$.

(a) Consider the following inequality

$$-5x < -20$$

Whenever a true inequality is divided by the same negative number, the direction of the inequality symbol should be reversed.

Simply the inequality by dividing both sides by -5 and change the inequality symbol.

The inequalities can be expressed as

$$-5x < -20$$
$$-\frac{5x}{-5} > \frac{-20}{-5}$$
$$x > 4$$

Therefore, the solution set represents as $\boxed{\{x \mid x > 4\}}$.

Hence, this inequality satisfies the given solution set $\boxed{a}$.

(b) Consider the following inequality

$$6x < 24$$

Simplify the inequality by dividing both sides with 6.

The inequalities can be expressed as

$$6x < 24$$
$$\frac{6x}{6} < \frac{24}{6}$$
$$x < 4$$

Therefore, the solution set represents as $\{x \mid x < 4\}$.

This doesn't satify the given solution set.

(c) Consider the following inequality

$$\frac{1}{5}x > \frac{4}{5}$$

Simplify the inequality by multiplying both sides with 5.

The inequalities can be expressed as

$$\frac{1}{5}x > \frac{4}{5}$$
$$\frac{1}{5}x \times 5 > \frac{4}{5} \times 5$$
$$x > 4$$

Therefore, the solution set represents as $\boxed{\{x \mid x > 4\}}$.

Hence, this inequality satisfies the given solution set $\boxed{c}$.

(d) Consider the following inequality

$$-\frac{3}{4}x < -3$$

Whenever a true inequality is divided by the same negative number, the direction of the inequality symbol should be reversed.

Simplify the inequality by multiply both sides by $-\frac{4}{3}$ and change the inequality symbol.

The inequalities can be expressed as

$$-\frac{3}{4}x < -3$$
$$-\frac{3}{4}x \times -\frac{4}{3} > -3 \times -\frac{4}{3}$$
$$x > 4$$

Therefore, the solution set represents as $\boxed{\{x \mid x > 4\}}$.

Hence, this inequality satisfies the given solution set $\boxed{d}$.

Therefore, $\boxed{a,c,d}$ satisfies the given solution set.

Answer 13PA.

$\frac{1}{5}n > 10$

The objective is to represents the given inequality in statement form.

This inequality is expressed in statement from as

$$\underbrace{\text{one fifth of a number}}_{\frac{1}{5}n}\ \underbrace{\text{greater than}}_{>}\ \underbrace{\text{ten}}_{10}$$

$\frac{1}{5}n > 10$

Therefore, the inequality matches with the statement d. $\boxed{d}$

Answer 14PA.

$5n \le 10$

The objective is to represents the given inequality in statement form.

This inequality is expressed in statement from as

$$\underbrace{\text{five times a number}}_{5n}\ \underbrace{\text{is less than or equal}}_{\le}\ \underbrace{\text{ten}}_{10}$$

$5n \le 10$

Therefore, the inequality matches with the statement a. $\boxed{a}$

Answer 15PA.

$5n > 10$

The objective is to represents the given inequality in statement form.

This inequality is expressed in statement from as

$$\underbrace{\text{five times a number}}_{5n}\ \underbrace{\text{is greater than}}_{>}\ \underbrace{\text{ten}}_{10}$$

$5n > 10$

Therefore, the inequality matches with the statement e. $\boxed{e}$

Answer 16PA.

$-5n < 10$

The objective is to represents the given inequality in statement form.

This inequality is expressed in statement from as

$$\underbrace{\text{negative five times a number}}_{-5n}\ \underbrace{\text{is less than}}_{<}\ \underbrace{\text{ten}}_{10}$$

$-5n < 10$

Therefore, the inequality matches with the statement f. $\boxed{f}$

Answer 17PA.

$$\frac{1}{5}n \geq 10$$

The objective is to represents the given inequality in statement form.

This inequality is expressed in statement from as

$$\underbrace{\text{one fifth of a number}}_{\frac{1}{5}n}\ \underbrace{\text{greater than or equal to}}_{\geq}\ \underbrace{\text{ten}}_{10}$$

$$\frac{1}{5}n \geq 10$$

Therefore, the inequality doesn't matches with the any statement.

Answer 18PA.

$$5n < 10$$

The objective is to represents the given inequality in statement form.

This inequality is expressed in statement from as

$$\underbrace{\text{five times a number}}_{5n}\ \underbrace{\text{is less than}}_{>}\ \underbrace{\text{ten}}_{10}$$

$$5n < 10$$

Therefore, the inequality matches with the statement c. $\boxed{c}$

Answer 19PA.

Consider the following inequality:

$$6g \leq 144$$

The objective is to solve the inequality and check the solution.

Simplify the inequality by dividing both sides with 6.

The inequalities can be expressed as

$$6g \leq 144$$
$$\frac{6g}{6} \leq \frac{144}{6}$$
$$g \leq 24$$

Therefore, the solution set represents as $\boxed{\{g \mid g \leq 24\}}$.

In order to check the solution consider $g = 10$

Substitute $g = 10$ in the given inequality

$$6g \leq 144$$
$$6 \times 10 \leq 144$$
$$60 \leq 144$$

The value of $g = 10$ satisfies the given inequality.

Now consider $g = 25$

Substitute $g = 25$ in the given inequality

$6g \le 144$

$6 \times 25 \le 144$

$150 \not\le 144$

This doesn't satisfy the given inequality.

Hence, always the solution set is represented as $\{g \mid g \le 24\}$.

Answer 20PA.

Consider the following inequality:

$7t > 84$

The objective is to solve the inequality and check the solution.

Simplify the inequality by dividing both sides with 7.

The inequalities can be expressed as

$7t > 84$

$\frac{7t}{7} > \frac{84}{7}$

$t > 12$

Therefore, the solution set represents as $\boxed{\{t \mid t > 12\}}$.

In order to check the solution consider $t = 15$

Substitute $t = 15$ in the given inequality

$7t > 84$

$7 \times 15 > 84$

$105 > 84$

The value of $t = 15$ satisfies the given inequality.

Now consider $t = 10$

Substitute $t = 10$ in the given inequality

$7t > 84$

$7 \times 10 > 84$

$70 \not> 84$

This doesn't satisfy the given inequality.

Hence, always the solution set is represented as $\{t \mid t > 12\}$.

Answer 21PA.

Consider the following inequality:

$-14d \geq 84$

The objective is to solve the inequality and check the solution.

Whenever a true inequality is multiplied or divided by the same negative number, the direction of the inequality symbol should be reversed.

Simplify the inequality by dividing both sides by -14 and change the inequality symbol.

The inequalities can be expressed as

$$-14d \geq 84$$
$$\frac{-14d}{-14} \leq \frac{84}{-14}$$
$$d \leq -6$$

Therefore, the solution set represents as $\boxed{\{d \mid d \leq -6\}}$.

In order to check the solution consider $d = -6$

Substitute $d = -6$ in the given inequality

$$-14d \geq 84$$
$$-14 \times -6 \geq 84$$
$$84 \geq 84$$

The value of $d = -6$ satisfies the given inequality.

Now consider $d = 6$

Substitute $d = 6$ in the given inequality

$$-14d \geq 84$$
$$-14 \times 6 \geq 84$$
$$-84 \not\geq 84$$

This doesn't satisfy the given inequality.

Hence, always the solution set is represented as $\{d \mid d \leq -6\}$.

Answer 22PA.

Consider the following inequality:

$$-16z \le -64$$

The objective is to solve the inequality and check the solution.

Whenever a true inequality is multiplied or divided by the same negative number, the direction of the inequality symbol should be reversed.

Simplify the inequality by dividing both sides by -16 and change the inequality symbol.

The inequalities can be expressed as

$$-16z \le -64$$
$$\frac{-16z}{-16} \ge \frac{-64}{-16}$$
$$z \ge 4$$

Therefore, the solution set represents as $\boxed{\{z \mid z \ge 4\}}$.

In order to check the solution consider $z = 4$

Substitute $z = 4$ in the given inequality

$$-16z \le -64$$
$$-16 \times 4 \le -64$$
$$-64 \le -64$$

The value of $z = 4$ satisfies the given inequality.

Now consider $z = 2$

Substitute $z = 2$ in the given inequality

$$-16z \le -64$$
$$-16 \times 2 \le -64$$
$$-32 \not\le -64$$

This doesn't satisfy the given inequality.

Hence, always the solution set is represented as $\{z \mid z \ge 4\}$.

Answer 23PA.

Consider the following inequality:

$$\frac{m}{5} \geq 7$$

The objective is to solve the inequality and check the solution.

Simplify the inequality by multiplying both sides with 5.

The inequalities can be expressed as

$$\frac{m}{5} \geq 7$$

$$\frac{m}{5} \times 5 \geq 7 \times 5$$

$$m \geq 35$$

Therefore, the solution set represents as $\boxed{\{m \mid m \geq 35\}}$.

In order to check the solution consider $m = 35$

Substitute $m = 35$ in the given inequality

$$\frac{m}{5} \geq 7$$

$$\frac{35}{5} \geq 7$$

$$7 \geq 7$$

The value of $m = 35$ satisfies the given inequality.

Now consider $m = 25$

Substitute $m = 25$ in the given inequality

$$\frac{m}{5} \geq 7$$

$$\frac{25}{5} \geq 7$$

$$5 \not\geq 7$$

This doesn't satisfy the given inequality.

Hence, always the solution set is represented as $\{m \mid m \geq 35\}$.

Answer 24PA.

Consider the following inequality:

$$\frac{b}{10} \le 5$$

The objective is to solve the inequality and check the solution.

Simplify the inequality by multiplying both sides with 10.

The inequalities can be expressed as

$$\frac{b}{10} \le 5$$
$$\frac{b}{10} \times 10 \le 5 \times 10$$
$$b \le 50$$

Therefore, the solution set represents as $\boxed{\{b \mid b \le 50\}}$.

In order to check the solution consider $b = 50$

Substitute $b = 50$ in the given inequality

$$\frac{b}{10} \le 5$$
$$\frac{50}{10} \le 5$$
$$5 \le 5$$

The value of $b = 50$ satisfies the given inequality.

Now consider $b = 60$

Substitute $b = 60$ in the given inequality

$$\frac{b}{10} \le 5$$
$$\frac{60}{10} \le 5$$
$$6 \not\le 5$$

This doesn't satisfy the given inequality.

Hence, always the solution set is represented as $\{b \mid b \le 50\}$.

Answer 25PA.

Consider the following inequality:

$$-\frac{r}{7} < -7$$

The objective is to solve the inequality and check the solution.

Whenever a true inequality is divided by the same negative number, the direction of the inequality symbol should be reversed.

Simplify the inequality by multiplying both sides by -7 and change the inequality symbol.

The inequalities can be expressed as

$$-\frac{r}{7} < -7$$

$$-\frac{r}{7} \times -7 > -7 \times -7$$

$$r > 49$$

Therefore, the solution set represents as $\boxed{\{r \mid r > 49\}}$.

In order to check the solution consider $r = 56$

Substitute $r = 56$ in the given inequality

$$-\frac{r}{7} < -7$$

$$-\frac{56}{7} < -7$$

$$-8 < -7$$

The value of $r = 56$ satisfies the given inequality.

Now consider $r = 42$

Substitute $r = 42$ in the given inequality

$$-\frac{r}{7} < -7$$

$$-\frac{42}{7} < -7$$

$$-6 \not< -7$$

This doesn't satisfy the given inequality.

Hence, always the solution set is represented as $\{r \mid r > 49\}$.

Answer 26PA.

Consider the following inequality:

$$-\frac{a}{11}>9$$

The objective is to solve the inequality and check the solution.

Whenever a true inequality is multiplied or divided by the same negative number, the direction of the inequality symbol should be reversed.

Simplify the inequality by multiplying both sides by -11 and change the inequality symbol.

The inequalities can be expressed as

$$-\frac{a}{11}>9$$

$$-\frac{a}{11}\times -11<9\times -11$$

$$a<-99$$

Therefore, the solution set represents as $\boxed{\{a\,|\,a<-99\}}$.

In order to check the solution consider $a=-111$

Substitute $a=-111$ in the given inequality

$$-\frac{a}{11}>9$$

$$-\frac{-111}{11}>9$$

$$11>9$$

The value of $a=-111$ satisfies the given inequality.

Now consider $a=-99$

Substitute $a=-99$ in the given inequality

$$-\frac{a}{11}>9$$

$$-\frac{-99}{11}>9$$

$$9\not>9$$

This doesn't satisfy the given inequality.

Hence, always the solution set is represented as $\{a\,|\,a<-99\}$.

Answer 27PA.

Consider the following inequality:

$$\frac{5}{8}y \geq -15$$

The objective is to solve the inequality and check the solution.

Simplify the inequality by multiplying both sides by 8/5.

The inequalities can be expressed as

$$\frac{5}{8}y \geq -15$$

$$\frac{\cancel{8}}{\cancel{8}}y \times \frac{\cancel{8}}{\cancel{5}} \geq -1\cancel{5}^{3} \times \frac{8}{\cancel{5}}$$

$$y \geq -24$$

Therefore, the solution set represents as $\boxed{\{y \mid y \geq -24\}}$.

In order to check the solution consider $y = -24$

Substitute $y = -24$ in the given inequality

$$\frac{5}{8}y \geq -15$$

$$\frac{5}{8} \times -24 \geq -15$$

$$-15 \geq -15$$

The value of $y = -24$ satisfies the given inequality.

Now consider $y = -32$

Substitute $y = -32$ in the given inequality

$$\frac{5}{8}y \geq -15$$

$$\frac{5}{\cancel{8}} \times -\cancel{32}^{4} \geq -15$$

$$-20 \not\geq -15$$

This doesn't satisfy the given inequality.

Hence, always the solution set is represented as $\{y \mid y \geq -24\}$.

Answer 28PA.

Consider the following inequality:

$$\frac{2}{3}v < 6$$

The objective is to solve the inequality and check the solution.

Simplify the inequality by multiplying both sides by 3/2.

The inequalities can be expressed as

$$\frac{2}{3}v < 6$$

$$\frac{\cancel{2}}{\cancel{3}}v \times \frac{\cancel{3}}{\cancel{2}} < \cancel{6}^{3} \times \frac{3}{\cancel{2}}$$

$$v < 9$$

Therefore, the solution set represents as $\boxed{\{v \mid v < 9\}}$.

In order to check the solution consider $v = 6$

Substitute $v = 6$ in the given inequality

$$\frac{2}{3}v < 6$$

$$\frac{2}{3} \times 6 < 6$$

$$4 < 6$$

The value of $v = 6$ satisfies the given inequality.

Now consider $v = 12$

Substitute $v = 12$ in the given inequality

$$\frac{2}{3}v < 6$$

$$\frac{2}{\cancel{3}} \times 1\cancel{2}^{4} < 6$$

$$8 \not< 6$$

This doesn't satisfy the given inequality.

Hence, always the solution set is represented as $\{v \mid v < 9\}$.

Answer 29PA.

Consider the following inequality:

$$-\frac{3}{4}q \le -33$$

The objective is to solve the inequality and check the solution.

Whenever a true inequality is multiplied or divided by the same negative number, the direction of the inequality symbol should be reversed.

Simplify the inequality by multiplying both sides by -4/3 and change the inequality symbol.

The inequalities can be expressed as

$$-\frac{3}{4}q \le -33$$

$$-\frac{\cancel{3}}{\cancel{4}}q \times -\frac{\cancel{4}}{\cancel{3}} \ge -3\overset{11}{\cancel{3}} \times -\frac{4}{\cancel{3}}$$

$$q \ge 44$$

Therefore, the solution set represents as $\boxed{\{q \mid q \ge 44\}}$.

In order to check the solution consider $q = 44$

Substitute $q = 44$ in the given inequality

$$-\frac{3}{4}q \le -33$$

$$-\frac{3}{\cancel{4}} \times \overset{11}{\cancel{4}}4 \le -33$$

$$-33 \le -33$$

The value of $q = 44$ satisfies the given inequality.

Now consider $q = 40$

Substitute $q = 40$ in the given inequality

$$-\frac{3}{4}q \le -33$$

$$-\frac{3}{\cancel{4}} \times \overset{10}{\cancel{4}}0 \le -33$$

$$-30 \not\le -33$$

This doesn't satisfy the given inequality.

Hence, always the solution set is represented as $\{q \mid q \ge 44\}$.

Answer 30PA.

Consider the following inequality:

$$-\frac{2}{5}p > 10$$

The objective is to solve the inequality and check the solution.

Whenever a true inequality is multiplied or divided by the same negative number, the direction of the inequality symbol should be reversed.

Simplify the inequality by multiplying both sides by -5/2 and change the inequality symbol.

The inequalities can be expressed as

$$-\frac{2}{5}p > 10$$

$$-\frac{\cancel{2}}{\cancel{5}}p \times -\frac{\cancel{5}}{\cancel{2}} < 1\cancel{0}^{5} \times -\frac{5}{\cancel{2}}$$

$$p < -25$$

Therefore, the solution set represents as $\boxed{\{p \mid p < -25\}}$.

In order to check the solution consider $p = -30$

Substitute $p = -30$ in the given inequality

$$-\frac{2}{5}p > 10$$

$$-\frac{2}{\cancel{5}} \times -3\cancel{0}^{6} > 10$$

$$12 > 10$$

The value of $p = -30$ satisfies the given inequality.

Now consider $p = -20$

Substitute $a = -99$ in the given inequality

$$-\frac{2}{5}p > 10$$

$$-\frac{2}{\cancel{5}} \times -2\cancel{0}^{4} > 10$$

$$8 \not> 10$$

This doesn't satisfy the given inequality.

Hence, always the solution set is represented as $\{p \mid p < -25\}$.

Answer 31PA.

Consider the following inequality:

$-2.5w < 6.8$

The objective is to solve the inequality and check the solution.

Whenever a true inequality is divided by the same negative number, the direction of the inequality symbol should be reversed.

Simplify the inequality by divide both sides by -2.5 and change the inequality symbol.

The inequalities can be expressed as

$$-2.5w < 6.8$$
$$-\frac{2.5w}{-2.5} > \frac{6.8}{-2.5}$$
$$w > -2.72$$

Therefore, the solution set represents as $\boxed{\{w \mid w > -2.72\}}$.

In order to check the solution consider $w = -2$

Substitute $w = -2$ in the given inequality

$$-2.5w < 6.8$$
$$-2.5 \times -2 < 6.8$$
$$5 < 6.8$$

The value of $p = -30$ satisfies the given inequality.

Now consider $w = -3$

Substitute $w = -3$ in the given inequality

$$-2.5w < 6.8$$
$$-2.5 \times -3 < 6.8$$
$$7.5 \not< 6.8$$

This doesn't satisfy the given inequality.

Hence, always the solution set is represented as $\{w \mid w > -2.72\}$.

Answer 32PA.

Consider the following inequality:

$-0.8s > 6.4$

The objective is to solve the inequality and check the solution.

Whenever a true inequality is divided by the same negative number, the direction of the inequality symbol should be reversed.

Simplify the inequality by divide both sides by -0.8 and change the inequality symbol.

The inequalities can be expressed as

$$-0.8s > 6.4$$
$$-\frac{0.8s}{-0.8} < \frac{6.8}{-0.8}$$
$$s < -8.5$$

Therefore, the solution set represents as $\boxed{\{s \mid s < -8.5\}}$.

In order to check the solution consider $s = -10$

Substitute $s = -10$ in the given inequality

$$-0.8s > 6.4$$
$$-0.8 \times -10 > 6.4$$
$$10 > 6.8$$

The value of $s = -10$ satisfies the given inequality.

Now consider $s = -3$

Substitute $s = -3$ in the given inequality

$$-0.8s > 6.4$$
$$-0.8 \times -3 > 6.4$$
$$2.4 \not> 6.8$$

This doesn't satisfy the given inequality.

Hence, always the solution set is represented as $\{s \mid s < -8.5\}$.

Answer 33PA.

Consider the following inequality:

$$\frac{15c}{-7} > \frac{3}{14}$$

The objective is to solve the inequality and check the solution.

Whenever a true inequality is multiplied or divided by the same negative number, the direction of the inequality symbol should be reversed.

Simplify the inequality by multiplying both sides by -7/15 and change the inequality symbol.

The inequalities can be expressed as

$$\frac{15c}{-7} > \frac{3}{14}$$

$$\frac{\cancel{15}c}{\cancel{-7}} \times -\frac{\cancel{7}}{\cancel{15}} < \frac{\cancel{3}}{\cancel{14}_{2}} \times -\frac{\cancel{7}}{\cancel{15}_{5}}$$

$$c < -\frac{1}{10}$$

Therefore, the solution set represents as $\boxed{\{c \mid c < -\frac{1}{10}\}}$.

In order to check the solution consider $c = -\frac{2}{10}$

Substitute $c = -\frac{2}{10}$ in the given inequality

$$\frac{15c}{-7} > \frac{3}{14}$$

$$\frac{15}{-7} \times -\frac{2}{10} > \frac{3}{14}$$

$$\frac{30}{70} > \frac{3}{14}$$

$$\frac{3}{7} > \frac{3}{14}$$

The value of $c = -\frac{2}{10}$ satisfies the given inequality.

Hence, always the solution set is represented as $\{c \mid c < -\frac{1}{10}\}$.

Answer 34PA.

Consider the following inequality:

$$\frac{4m}{5} < \frac{-3}{15}$$

The objective is to solve the inequality and check the solution.

Simplify the inequality by multiplying both sides with 5/4.

The inequalities can be expressed as

$$\frac{4m}{5} < \frac{-3}{15}$$
$$\frac{4m}{\cancel{5}} \times \frac{\cancel{5}}{\cancel{4}} < \frac{-3}{15} \times \frac{5}{4}$$
$$m < -\frac{1}{4}$$

Therefore, the solution set represents as $\boxed{\{m \mid m < -\frac{1}{4}\}}$.

In order to check the solution consider $m = -\frac{1}{3}$

Substitute $m = -\frac{1}{3}$ in the given inequality

$$\frac{4m}{5} < \frac{-3}{15}$$
$$\frac{4}{5} \times -\frac{1}{3} < \frac{-3}{15}$$
$$\frac{-4}{15} < \frac{-3}{15}$$

The value of $m = -\frac{1}{3}$ satisfies the given inequality.

Now consider $m = \frac{1}{3}$

Substitute $m = \frac{1}{3}$ in the given inequality

$$\frac{4m}{5} < \frac{-3}{15}$$
$$\frac{4}{5} \times \frac{1}{3} < \frac{-3}{15}$$
$$\frac{4}{15} \not< \frac{-3}{15}$$

This doesn't satisfy the given inequality.

Hence, always the solution set is represented as $\{m \mid m < -\frac{1}{4}\}$.

Answer 35PA.

Consider the following inequality:

$$-\frac{y}{8} > \frac{1}{2}$$

The objective is to solve the inequality and graph the solution

Whenever a true inequality is divided by the same negative number, the direction of the inequality symbol should be reversed.

Simplify the inequality by multiplying both sides by -8 and change the inequality symbol.

The inequalities can be expressed as

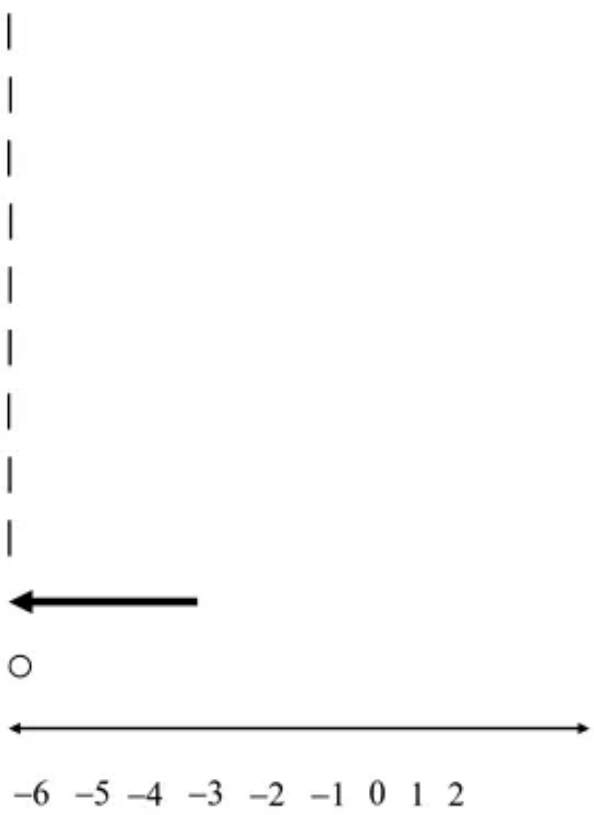
$$-\frac{y}{8} > \frac{1}{2}$$

$$-\frac{y}{\cancel{8}} \times -\cancel{8} < \frac{1}{2} \times -8$$

$$y < -4$$

Therefore, the solution set represents as $\boxed{\{y \mid y < -4\}}$.

The solution set represents $\{y \mid y < -4\}$



The graph above shows that -4 is not included and arrow mark pointing towards left tell that it is less than -4.

Answer 36PA.

Consider the following inequality:

$$-\frac{m}{9} \le -\frac{1}{3}$$

The objective is to solve the inequality and graph the solution

Whenever a true inequality is divided by the same negative number, the direction of the inequality symbol should be reversed.

Simplify the inequality by multiplying both sides by -9 and change the inequality symbol.

The inequalities can be expressed as

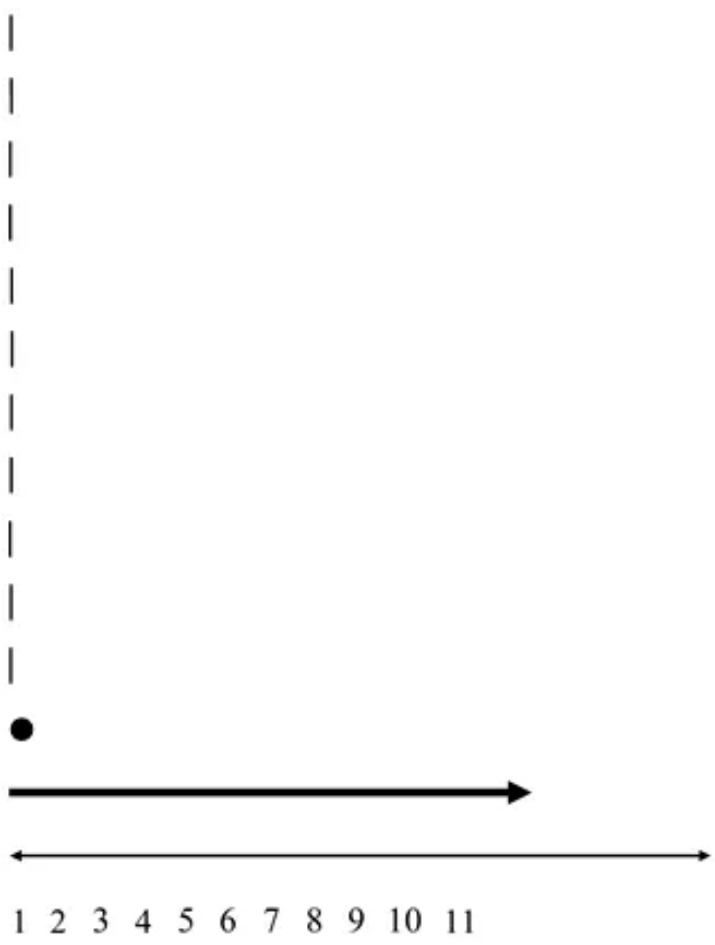
$$-\frac{m}{9} \le -\frac{1}{3}$$

$$-\frac{m}{9} \times -9 \ge -\frac{1}{3} \times -9$$

$$m \ge 3$$

Therefore, the solution set represents as $\boxed{\{m \mid m \ge 3\}}$.

The inequality can be represented in the graph with the doted circle and heavy arrow mark right to the number 3.



Answer 37PA.

Consider the following inequality:

$2a \geq 7$

The objective is to solve and compute the given inequality.

(a) The inequality here is to find the value of $a \geq ?$

Simply the given expression

$2a \geq 7$

Divide both sides by 2

$2a \geq 7$

$\frac{2a}{2} \geq \frac{7}{2}$

$a \geq \frac{7}{2}$

Therefore the solution set is represented as $\boxed{\{a \mid a \geq \frac{7}{2}\}}$

(b) The inequality here is to find the value of $-4a \leq ?$

Simply the given expression

$2a \geq 7$

Multiply with a negative number makes the inequality to change its direction.

Multiply both sides with -2 and change the inequality symbol.

$2a \geq 7$

$2a \times -2 \leq 7 \times -2$

$-4a \leq -14$

Therefore the solution is $\boxed{-4a \leq -14}$

(c) The inequality here is to find the value of $?a \leq -21$

In order to get -21 in LHS, multiply the given inequality with -3.

Multiply with a negative number makes the inequality to change its direction.

Multiply both sides with -3 and change the inequality symbol.

$2a \geq 7$

$2a \times -3 \leq 7 \times -3$

$-6a \leq -21$

Therefore the solution is $\boxed{-6a \leq -21}$.

Answer 38PA.

Consider the following inequality:

$4t < -2$

The objective is to solve and compute the given inequality.

(a) The inequality here is to find the value of $t < ?$

Simply the given expression

$4t < -2$

Divide both sides by 4

$4t < -2$

$\frac{4t}{4} < \frac{-2}{4}$

$t < -\frac{1}{2}$

Therefore the solution set is represented as $\boxed{\{t \mid t < -\frac{1}{2}\}}$

(b) The inequality here is to find the value of $-8t > ?$

Simply the given expression

$4t < -2$

Multiply with a negative number makes the inequality to change its direction.

Multiply both sides with -2 and change the inequality symbol.

$4t < -2$

$4t \times -2 > -2 \times -2$

$-8t > 4$

Therefore the solution is $\boxed{-8t > 4}$

(c) The inequality here is to find the value of $?t > 14$

In order to get 14 in LHS, multiply the given inequality with -7.

Multiply with a negative number makes the inequality to change its direction.

Multiply both sides with -7 and change the inequality symbol.

$4t < -2$

$4t \times -7 > -2 \times -7$

$-28t > 14$

Therefore the solution is $\boxed{-28t > 14}$.

Answer 39PA.

The objective is to write the inequality for the given sentence.

Consider the number as n and seven times 7n, is greater than (>) 28.

This statement can be expressed as

$$\underbrace{\text{seven times}}_{7n}\ \underbrace{\text{is greater than}}_{>}\ \underbrace{\text{twenty eight}}_{28}$$

$$7n > 28$$

Simplify the inequality by dividing both sides with 7.

The inequalities can be expressed as

$$7n > 28$$

$$\frac{7n}{7} > \frac{28}{7}$$

$$n > 4$$

Therefore, the solution set represents as $\boxed{\{n \mid n > 4\}}$.

In order to check the solution consider $n = 5$

Substitute $n = 5$ in the given inequality

$$7n > 28$$

$$7 \times 5 > 28$$

$$35 > 28$$

The value of $n = 5$ satisfies the given inequality.

Now consider $n = 3$

Substitute $n = 3$ in the given inequality

$$7n > 28$$

$$7 \times 3 > 28$$

$$21 \not> 28$$

This doesn't satisfy the given inequality.

Hence, always the solution set is represented as $\{n \mid n > 4\}$.

Answer 40PA.

The objective is to write the inequality for the given sentence.

Consider the number as n and negative seven times -7n, is at least 14.

This statement can be expressed as

$$\underbrace{\text{negative seven times}}_{-7n}\ \underbrace{\text{is at least}}_{\geq}\ \underbrace{\text{fourteen}}_{14}$$

$$-7n \geq 14$$

Whenever a true inequality is divided by the same negative number, the direction of the inequality symbol should be reversed.

Simplify the inequality by divide both sides by -7 and change the inequality symbol.

The inequalities can be expressed as

$$-7n \geq 14$$

$$\frac{-7n}{-7} \leq \frac{14}{-7}$$

$$n \leq -2$$

Therefore, the solution set represents as $\boxed{\{n \mid n \leq -2\}}$.

In order to check the solution consider $n = -2$

Substitute $n = -2$ in the given inequality

$$-7n \geq 14$$

$$-7 \times -2 \geq 14$$

$$14 \geq 14$$

The value of $n = -2$ satisfies the given inequality.

Now consider $n = 3$

Substitute $n = 3$ in the given inequality

$$-7n \geq 14$$

$$-7 \times 3 \geq 14$$

$$-21 \not\geq 14$$

This doesn't satisfy the given inequality.

Hence, always the solution set is represented as $\{n \mid n \leq -2\}$.

Answer 41PA.

The objective is to write the inequality for the given sentence.

Consider the number as n and twenty four is at most (less than or equal to) one third of the number n.

This statement can be expressed as

$$\underbrace{\text{twenty four}}_{24}\ \underbrace{\text{is at most}}_{\leq}\ \underbrace{\text{third of number}}_{n/3}$$

$$\frac{1}{3}n \geq 24$$

Simplify the inequality by multiplying both sides with 3.

The inequalities can be expressed as

$$\frac{1}{3}n \geq 24$$

$$\frac{1}{3}n \times 3 \geq 24 \times 3$$

$$n \geq 72$$

Therefore, the solution set represents as $\boxed{\{n \mid n \geq 72\}}$.

In order to check the solution consider $n = 72$

Substitute $n = 72$ in the given inequality

$$\frac{1}{3}n \geq 24$$

$$\frac{1}{3} \times 72 \geq 24$$

$$24 \geq 24$$

The value of $n = 72$ satisfies the given inequality.

Now consider $n = 24$

Substitute $n = 24$ in the given inequality

$$\frac{1}{3}n \geq 24$$

$$\frac{1}{3} \times 24 \geq 24$$

$$8 \not\geq 24$$

This doesn't satisfy the given inequality.

Hence, always the solution set is represented as $\{n \mid n \geq 72\}$.

Answer 42PA.

The objective is to write the inequality for the given sentence.

Consider the number as n and two thirds a number n is less than -15.

This statement can be expressed as

$$\underbrace{\text{two thirds a number}}_{\frac{2}{3}n} \ \underbrace{\text{is less than}}_{<} \ \underbrace{\text{negative 15}}_{-15}$$

$$\frac{2}{3}n < -15$$

Simplify the inequality by multiplying both sides with 3/2.

The inequalities can be expressed as

$$\frac{2}{3}n<-15$$

$$\frac{\cancel{2}}{\cancel{3}}n\times\frac{\cancel{3}}{\cancel{2}}<-15\times\frac{3}{2}$$

$$n<\frac{-45}{2}$$

Therefore, the solution set represents as $\boxed{\{n\,|\,n<-\frac{45}{2}\}}$.

In order to check the solution consider $n=-30$

Substitute $n=-30$ in the given inequality

$$\frac{2}{3}n<-15$$

$$\frac{2}{\cancel{3}}\times-\overset{10}{\cancel{30}}<-15$$

$$-20<15$$

The value of $n=-30$ satisfies the given inequality.

Now consider $n=-15$

Substitute $n=24$ in the given inequality

$$\frac{2}{3}n<-15$$

$$\frac{2}{\cancel{3}}\times-\overset{5}{\cancel{15}}<-15$$

$$-10\not<15$$

This doesn't satisfy the given inequality.

Hence, always the solution set is represented as $\{n\,|\,n<-\frac{45}{2}\}$.

Answer 43PA.

The objective is to write the inequality for the given sentence.

Consider the number as n and twenty-five percent of a number is greater than or equal to 90.

This statement can be expressed as

$$\underbrace{\text{two five percent a number}}_{0.25n}\ \underbrace{\text{is greater than or equal to}}_{\geq}\ \underbrace{\text{ninty}}_{90}$$

$$0.25n\geq 90$$

Simplify the inequality by dividing both sides with 0.25.

The inequalities can be expressed as

$$0.25n \geq 90$$

$$\frac{0.25n}{0.25} \geq \frac{90}{0.25}$$

$$n \geq 360$$

Therefore, the solution set represents as $\boxed{\{n \mid n \geq 360\}}$.

In order to check the solution consider $n = 360$

Substitute $n = 360$ in the given inequality

$$0.25n \geq 90$$

$$0.25 \times 360 \geq 90$$

$$90 \geq 90$$

The value of $n = 360$ satisfies the given inequality.

Now consider $n = 100$

Substitute $n = 100$ in the given inequality

$$0.25n \geq 90$$

$$0.25 \times 100 \geq 90$$

$$25 \not\geq 90$$

This doesn't satisfy the given inequality.

Hence, always the solution set is represented as $\{n \mid n \geq 360\}$.

Answer 44PA.

The objective is to write the inequality for the given sentence.

Consider the number as n and forty percent of a number is less than or equal to 45.

This statement can be expressed as

$$\underbrace{\text{forty percent a number}}_{0.4n} \ \underbrace{\text{is less than or equal to}}_{\leq} \ \underbrace{\text{fourty five}}_{45}$$

$$0.4n \leq 45$$

Simplify the inequality by dividing both sides with 0.4.

The inequalities can be expressed as

$$0.4n \leq 45$$

$$\frac{0.4n}{0.4} \leq \frac{45}{0.4}$$

$$n \leq 112.5$$

Therefore, the solution set represents as $\boxed{\{n \mid n \leq 112.5\}}$.

In order to check the solution consider $n=100$

Substitute $n=100$ in the given inequality

$0.4n \le 45$

$0.4\times100 \le 45$

$40 \le 45$

The value of $n=360$ satisfies the given inequality.

Now consider $n=120$

Substitute $n=120$ in the given inequality

$0.4n \le 45$

$0.4\times120 \le 45$

$48 \le 45$

This doesn't satisfy the given inequality.

Hence, always the solution set is represented as $\{n \mid n \le 112.5\}$.

Answer 45PA.

The objective is to find the width of the rectangle.

Consider 'r' as the width of the rectangle.

The area of the rectangle is less than 85 square feet and it expressed as product of length and width. The length of the rectangle is 20 feet.

This can be expressed as following inequality

$r\times20 < 85 \text{ square feet}$

Simplify the inequality by dividing both sides with 20.

The inequalities can be expressed as

$r\times20 < 85$

$\frac{r\times20}{20} < \frac{85}{20}$

$r < 4.25$

The solution set represents $\{r \mid r < 4.25\}$.

Therefore the width of the rectangle is $\boxed{r < 4.25 \text{ feet}}$.

Answer 46PA.

The objective is to find the number of bags of mulch has to be sold by the band.

Consider 'r' as the number of mulch bags that needs to be sold.

The Middletown Marching Mustangs want to make at least $2000. Each bag cost $2.50.

The number of bags that should be sold can be obtained by multiplying the number of bags with each bag cost which should be at least (greater than or equal to) $2000.

This can be expressed as following inequality

$r\times2.5 \ge 2000$

Simplify the inequality by dividing both sides with 2.5.

The inequalities can be expressed as

$$r \times 2.5 \geq 2000$$
$$\frac{r \times 2.5}{2.5} \geq \frac{2000}{2.5}$$
$$r \geq 800$$

The solution set represents $\{r \mid r \geq 800\}$.

Therefore at least 800 mulch bags need to sell by the band.

$$\boxed{r \geq 800}$$

Answer 47PA.

The objective is to find the time that Juan can talk to his friend.

Consider 'r' as the time taken that Juan can talk to his friend.

The total amount Juan wants to spend is not more than \$2.5 on the call. The call in charge per minute from the phone company is 9cents.

The time Juan can talk is obtained by multiplying r with each minutes charge should be less than \$2.5.

This can be expressed as following inequality

$$r \times 9\text{¢} < \$2.5$$
$$r \times 9\text{¢} < 250\text{¢}$$

100 cents = 1 dollar

Simplify the inequality by dividing both sides with 9.

The inequalities can be expressed as

$$r \times 9 < 250$$
$$\frac{r \times 9}{9} < \frac{250}{9}$$
$$r < 27.78$$

The solution set represents $\{r \mid r < 27.78\}$.

Therefore at Juan can talk with his friend around 27 minutes.

$$\boxed{r < 27.78 \text{ minutes}}$$

Answer 48PA.

The objective is to find number of people need to attend the reunion to avoid the rental fee for the hall by Shaniqua.

Consider 'r' as the minimum number of people needs to attend the reunion.

The minimum amount needs to spend on food in the Country Corner Reception Hall in order to avoid the rental fee is at least (greater than equal to) $4000. Cost of buffer per person is $28.95. The number of people needs to attend the reunion to avoid the rental fee for the hall can be obtained by the inequality the number times each person cost should be at least $4000.

This can be expressed as following inequality

$$r \times 28.95 \geq 4000$$

Simplify the inequality by dividing both sides with 28.95.

The inequalities can be expressed as

$$r \times 28.95 \geq 4000$$
$$\frac{r \times 28.95}{28.95} \geq \frac{4000}{28.95}$$
$$r \geq 138.17$$

Therefore at least 139 people need to attend the reunion to avoid the rental fee for the hall $\boxed{139}$.

Answer 49PA.

The objective is to find the radius of the garden.

Consider 'r' as the radius of the garden.

The circular area (perimeter) of the garden planned by Matthew is up to 38 feet. The radius of the garden can be obtained by using the formulae of the perimeter of the circle.

$C = 2\pi r$, C is the circular area

Here can be expressed as following inequality

$$2\pi r \leq 38$$

Simplify the inequality by dividing both sides with 2π.

The inequalities can be expressed as

$$\frac{2\pi r}{2\pi} \leq \frac{38}{2\pi}$$
$$r \leq \frac{\overset{19}{\cancel{38}}}{\cancel{2} \times 3.1416} \quad \pi = 3.1416$$
$$r \leq \frac{19}{3.1416}$$
$$r \leq 6.05 \text{ feet}$$

Therefore the radius of the garden is $\boxed{r \leq 6.05 \text{ feet}}$.

Answer 50PA.

The objective is to find the distance travelled by the person in 1½ hour.

Consider 'r' as the distance travelled by the person.

The speed limit of the interstate is 65 miles per hour. About 1.5 hours is taken by the person. The distance traveled is obtained by dividing the distance with time which is less than 65 miles per hour.

This can be expressed as following inequality

$$\frac{r}{1.5} < 65$$

Simplify the inequality by multiplying both sides with 1.5.

The inequalities can be expressed as

$$\frac{r}{1.5} < 65$$

$$\frac{r}{1.5} \times 1.5 < 65 \times 1.5$$

$$r < 97.5$$

Therefore the distance travelled by the person in 1½ hour is less than $\boxed{97.5 \text{ miles}}$.

Answer 51PA.

The objective is to find the number of times a family should visit the San Diego Zoo using regular admission fee instead of yearly membership that will save money.

Consider 'r' as the number of times the family visits the Zoo.

The regular admission fee for each adult is $18 and child is $8.

For two adults and two children the regular fee is

$$2 \times 18 + 2 \times 8 = \$52$$

So the number of times a family visited can be obtained by multiplying regular fee with r which should be less than yearly membership fee of $144.

This can be expressed as following inequality

$$52 \times r < 144$$

Simplify the inequality by dividing both sides with 52.

The inequalities can be expressed as

$$52 \times r < 144$$

$$\frac{52 \times r}{52} < \frac{144}{52}$$

$$r < 2.77$$

Therefore the Family should visit 2 times in order to less expense than buying a yearly membership fee. $\boxed{2 \text{ times}}$

Answer 52PA.

The objective is to find the given inequality is not always true.

(a) Consider the following inequality statements

$a > b$

$a^2 > b^2$

Let us consider two values for a, b that satisfies first inequality statement.

Consider

$a = 3, b = 2$

$3 > 2$

Substitute a, b values in second inequality.

$a^2 > b^2$

$3^2 > 2^2$ This is true.

$9 > 4$

Now let us consider

$a = 3, b = -4$

$3 > -4$

Substitute a, b values in second inequality.

$a^2 > b^2$

$3^2 > (-4)^2$ This is not true.

$9 \not> 16$

Hence the given statement is not always true.

(b) Consider the following inequality statements

$a < b$ and $c < d$

$ac < bd$

Let us consider values for a, b, c and d that satisfies first inequality statement.

Consider

$a = 2, b = 3$

$c = 4, d = 5$

Substitute these values in second inequality.

$ac < bd$

$2 \times 4 < 3 \times 5$ This is true.

$8 < 15$

Now let us consider

$a=-2, b=3$

$c=-4, d=1$

Substitute these values in second inequality.

$ac < bd$

$-2\times-4 < 3\times1$ This is not true.

$8 \not< 3$

Hence the given statement is not always true.

Answer 53PA.

The objective is to find how many spaces must the parking lot to fill the compact cars.

Consider 'r' as the number of parking spaces.

There are 35 spaces for compact cars. There should be no more than 20% of the parking spaces.

The number of spaces required is obtained by multiplying parking spaces required with 20% higher number which should be less than or equal to 35.

This can be expressed as following inequality

$1.2\times r \le 35$

Simplify the inequality by dividing both sides with 1.2.

The inequalities can be expressed as

$1.2\times r \le 35$

$\frac{1.2\times r}{1.2} \le \frac{35}{1.2}$

$r \le 29.17$

Therefore the number of spaces required for parking lot to fill the compact cars is $\boxed{29 \text{ spaces}}$.

Answer 54PA.

The objective is to find how many signatures should seek for the petition.

Consider 'r' as the minimum signatures required seeking the petition.

At least 6000 signatures required for a candidate to run for a country office. Only 85% of the signatures are only valid.

The number of signatures that are required is obtained by multiplying 85% with the number of signatures that are greater than or equal to 6000.

This can be expressed as following inequality

$0.85\times r \ge 6000$

Simplify the inequality by dividing both sides with 0.85.

The inequalities can be expressed as

$$0.85 \times r \geq 6000$$
$$\frac{0.85 \times r}{0.85} \geq \frac{6000}{0.85}$$
$$r \geq 7059$$

Therefore at least 7059 signatures are required for seeking the petition $\boxed{7059 \text{ signatures}}$.

Answer 55PA.

Inequalities provide how to layout a structure or design based on the area/material present. It also saves the material used for landscaping by planning it ahead.

Consider an example the number of bricks required each 3 inches high to build a wall not more than 4 feet height.

Consider 'r' as the number of bricks required to build a wall.

The total height of the wall is 4 feet = 4*12 = 48 inches.

Each brick is 3 in height. The number of bricks required is obtained by multiplying r with 3 inches that are less than or equal to 48.

This can be expressed as following inequality

$$3 \times r \leq 48$$

Simplify the inequality by dividing both sides with 3.

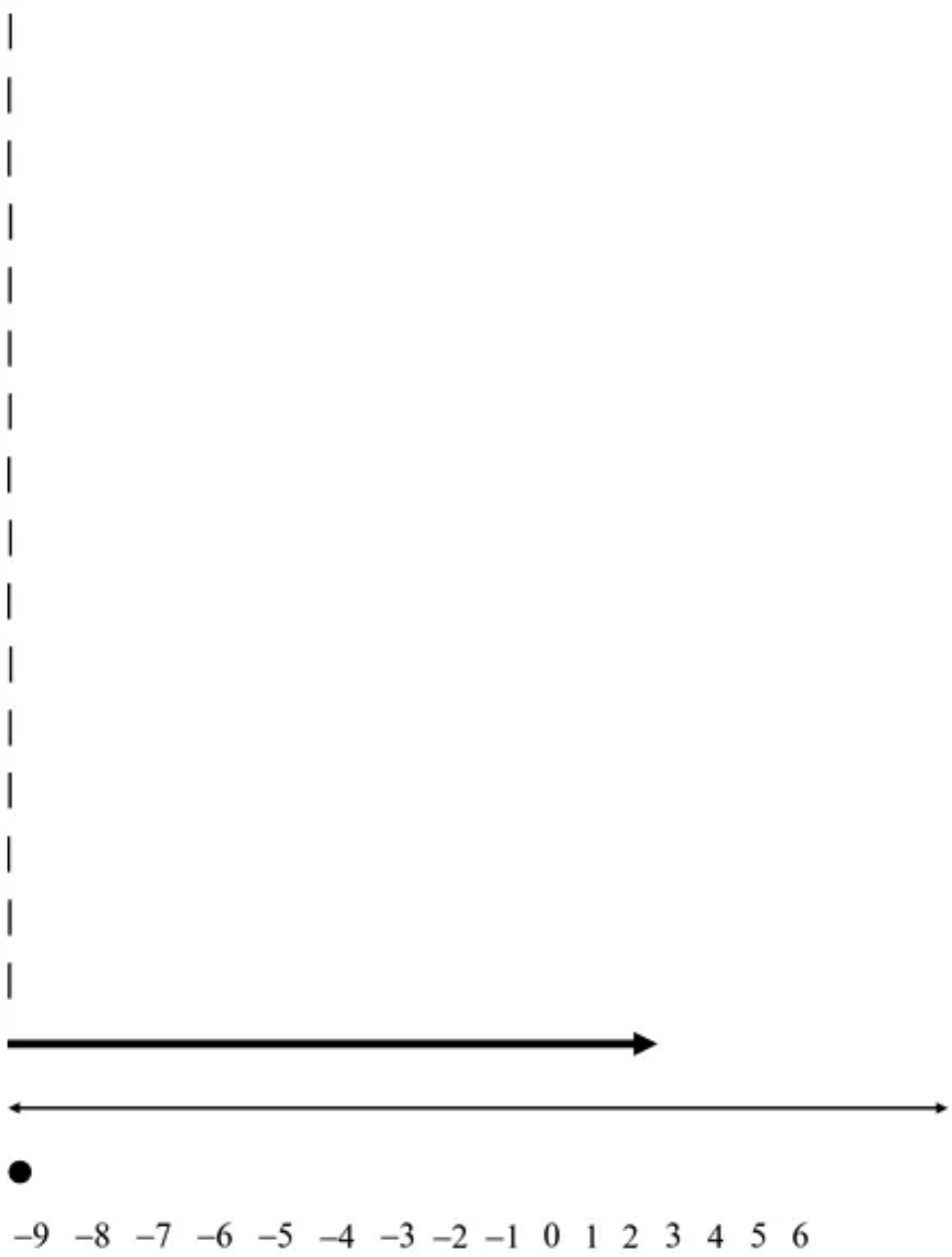
The inequalities can be expressed as

$$3 \times r \leq 48$$
$$\frac{3 \times r}{3} \leq \frac{48}{3}$$
$$r \leq 16$$

Therefore the number of bricks required to build a 4 feet wall is $\boxed{r \leq 16}$.

Answer 56PA.

Consider the following graph



The above graph can be expressed as the inequality which states any number is equal or greater than -5.

This can be expressed as following inequality

$x \geq -5$

The objective is to find from the given inequalities which doesn't represents the above graph.

(a) Consider the inequality

$$-\frac{x}{5} \le 1$$

Whenever a true inequality is multiplied or divided by the same negative number, the direction of the inequality symbol should be reversed.

Simplify the inequality by multiplying both sides by -5 and change the inequality symbol.

The inequalities can be expressed as

$$-\frac{x}{5} \le 1$$

$$-\frac{x}{5} \times -5 \ge 1 \times -5$$

$$x \ge -5$$

This inequality satisfies the given graph, so option (a) is not the answer.

(b) Consider the inequality

$$\frac{x}{5} \le -1$$

Simplify the inequality by multiplying both sides by 5.

The inequalities can be expressed as

$$\frac{x}{5} \le -1$$

$$\frac{x}{5} \times 5 \le -1 \times 5$$

$$x \le -5$$

This inequality doesn't satisfy the given graph, so option (b) is the answer $\boxed{b}$.

(c) Consider the inequality

$$-9x \le 45$$

Whenever a true inequality is multiplied or divided by the same negative number, the direction of the inequality symbol should be reversed.

Simplify the inequality by divide both sides by -9 and change the inequality symbol.

The inequalities can be expressed as

$$-9x \le 45$$

$$\frac{-9x}{-9} \ge \frac{45}{-9}$$

$$x \ge -5$$

This inequality satisfies the given graph, so option (c) is not the answer.

(d) Consider the inequality

$$2.5x \geq -12.5$$

Simplify the inequality by multiplying both sides by 2.5.

The inequalities can be expressed as

$$2.5x \geq -12.5$$
$$\frac{2.5x}{2.5} \geq -\frac{12.5}{2.5}$$
$$x \geq -5$$

This inequality satisfies the given graph, so option (d) is not the answer.

Answer 57PA.

Consider the following inequality:

$$-\frac{7}{8}t < \frac{14}{15}$$

The objective is to solve the inequality and check with the given option.

Whenever a true inequality is multiplied or divided by the same negative number, the direction of the inequality symbol should be reversed.

Simplify the inequality by multiplying both sides by -8/7 and change the inequality symbol.

The inequalities can be expressed as

$$-\frac{7}{8}t < \frac{14}{15}$$
$$-\frac{\cancel{7}}{\cancel{8}}t \times -\frac{\cancel{8}}{\cancel{7}} > \frac{\overset{2}{\cancel{14}}}{15} \times -\frac{8}{\cancel{7}}$$
$$t > -\frac{2 \times 8}{15}$$
$$t > -\frac{16}{15}$$

Therefore, the solution set represents as $\{t \mid t > -\frac{16}{15}\}$.

Thos solution set matches with c.

Hence, answer is $\boxed{c}$.

Answer 58MYS.

Consider the following inequality:

$$s-7<12$$

The objective is to solve the inequality and graph it on the number line.

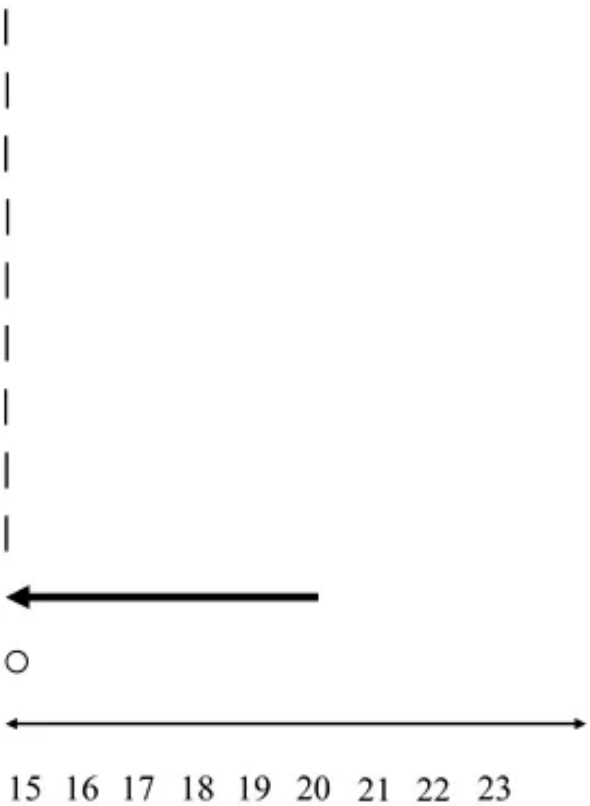
Simply the given expression

Add 7 on both sides

$$s-7<12$$
$$s-7+7<12+7$$
$$s<19$$

The solution set represents $\boxed{\{s \mid s<19\}}$

Graph the above inequality



Open circle represents as 19 not included and arrow mark pointing towards left tell that it is less than 19.

Answer 59MYS.

Consider the following inequality:

$$g+3\le -4$$

The objective is to solve the inequality and graph it on the number line.

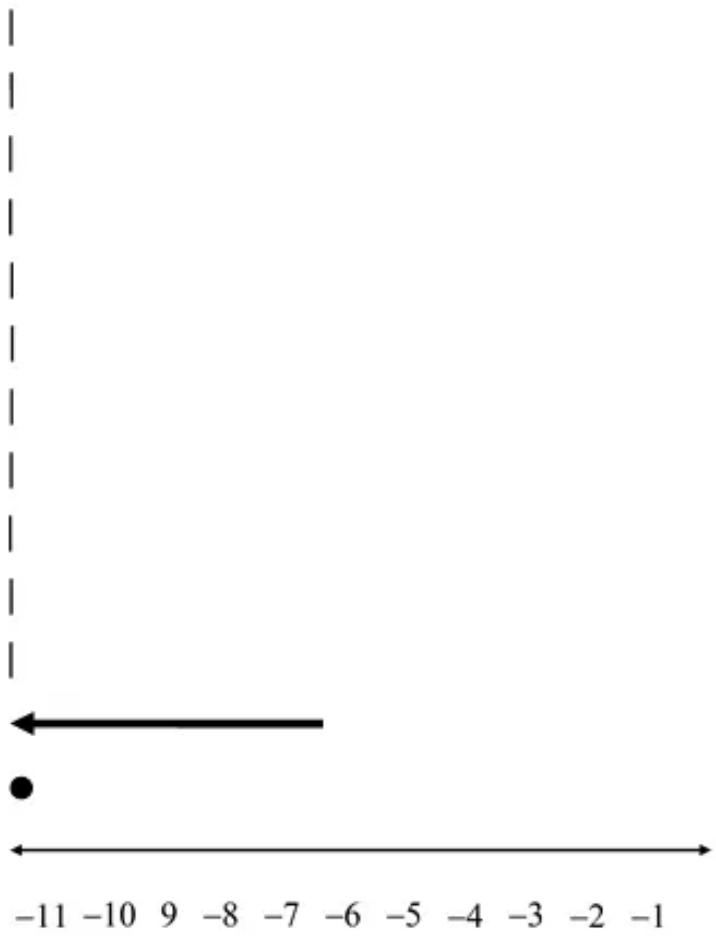
Simply the given expression

Subtract 3 on both sides

$$g+3\le -4$$
$$g+3-3\le -4-3$$
$$g\le -7$$

The solution set represents $\boxed{\{g \mid g\le -7\}}$

The inequality can be represented in the graph with the dotted circle and heavy arrow mark left to the number -7.



Answer 60MYS.

Consider the following inequality:

$7 > n + 2$

The objective is to solve the inequality and graph it on the number line.

Simply the given expression

Subtract 2 on both sides

$7 > n + 2$

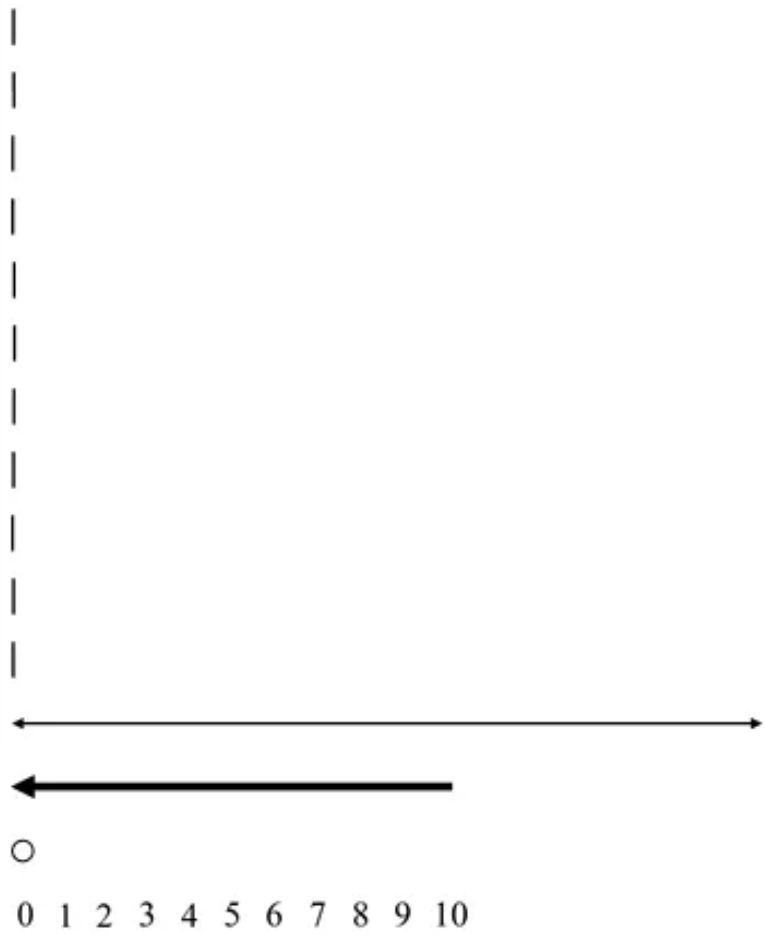
$7 - 2 > n + 2 - 2$

$5 > n$

$n < 5$

The solution set represents $\boxed{\{n \mid n < 5\}}$

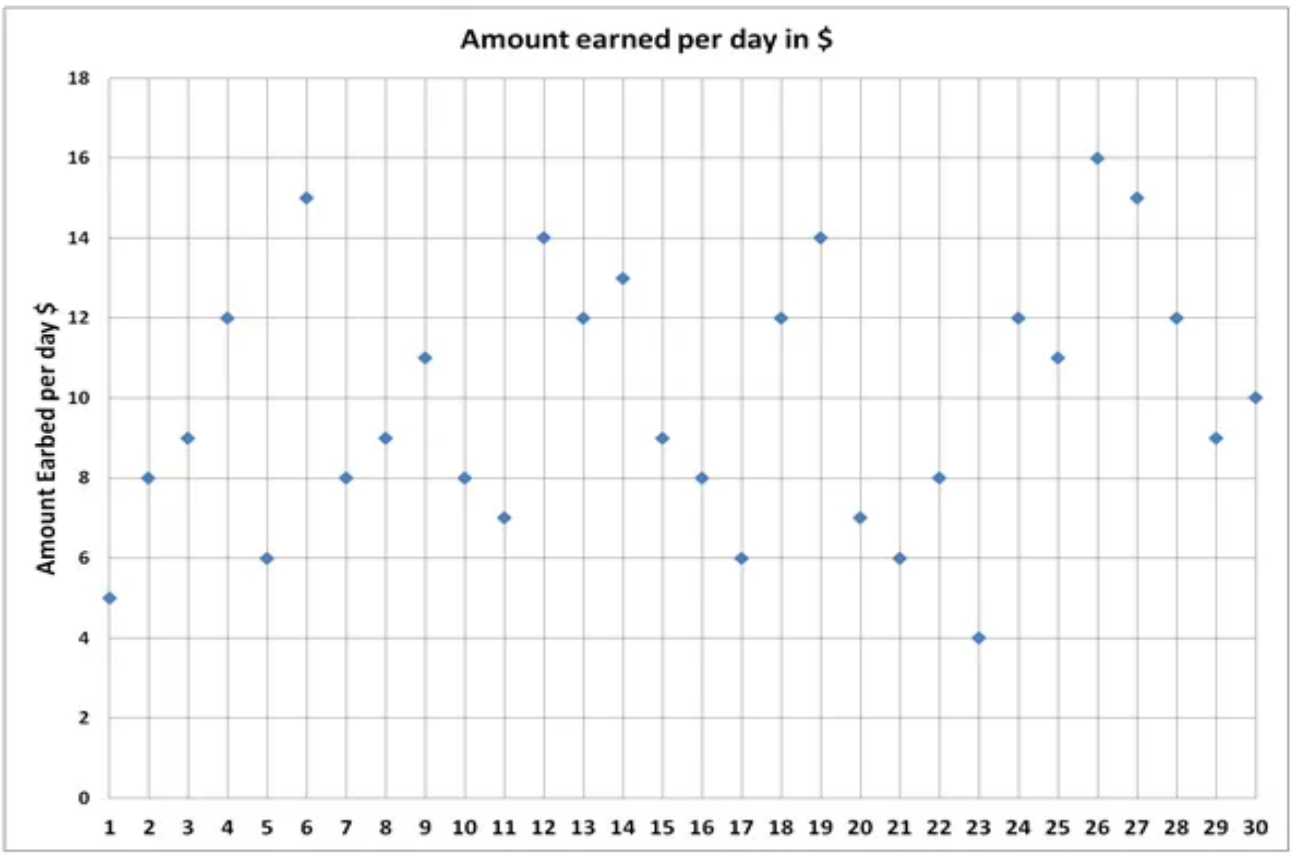
The inequality can be represented in the graph with the open circle and heavy arrow mark left to the number 5.



Answer 61MYS.

Consider an example of a fruit vendor who sells apples and live his livelihood on daily basis. He earns an average of $10 per day.

Consider a plot of his earnings per daily for month.



This plot shows a positive correlation of his earnings, which shows a positive value.

Answer 62MYS.

The objective is to write an equation of a line that passes through the given pair of points.

In order to find the equation of the line, first we need to calculate the slope of the line.

That is expressed using the formula

$$m=\frac{y_2-y_1}{x_2-x_1}$$

The given points are

$$(x_1,y_1)=(-1,3)$$
$$(x_2,y_2)=(2,4)$$

Substitute the values to obtain the slope

$$m=\frac{y_2-y_1}{x_2-x_1}$$
$$=\frac{4-3}{2-(-1)}$$
$$=\frac{1}{3}$$

The equation of line representing the slope intercept form is

$y=mx+c$ Where m is the slope of the line

The line intercept can be obtained by substituting any of the point.

Substitute $m=\frac{1}{3},(x_1,y_1)=(-1,3)$ in the slope intercept form equation

$$3=-1\times\frac{1}{3}+c$$
$$c=3+\frac{1}{3}$$
$$c=\frac{10}{3}$$

Hence substitute slope m and intercept c values in the above slope intercept equation, which give us

$$y=\frac{1}{3}x+\frac{10}{3}$$
$$3y=x+10$$
$$x-3y+10=0$$

Therefore the equation of the line that passes through the given pair of lines is $\boxed{x-3y+10=0}$

Answer 63MYS.

The objective is to write an equation of a line that passes through the given pair of points.

In order to find the equation of the line, first we need to calculate the slope of the line.

That is expressed using the formula

$$m=\frac{y_2-y_1}{x_2-x_1}$$

The given points are

$$(x_1,y_1)=(5,-2)$$
$$(x_2,y_2)=(-1,-2)$$

Substitute the values to obtain the slope

$$\begin{aligned} m&=\frac{y_2-y_1}{x_2-x_1}\\ &=\frac{-2-(-2)}{-1-5}\\ &=0 \end{aligned}$$

The slope of the line is zero, which states that the line is parallel to y-axis and x coordinates don't have any effect on the line.

The equation of line representing the slope intercept form is

$y=mx+c$ Where m is the slope of the line

The line intercept can be obtained by substituting any of the point.

Substitute $m=0,(x_1,y_1)=(5,-2)$ in the slope intercept form equation

$$y=0x+-2$$
$$y=-2$$

Therefore the equation of the line that passes through the given pair of lines is $\boxed{y=-2}$.

Answer 64MYS.

The objective is to write an equation of a line that passes through the given pair of points.

In order to find the equation of the line, first we need to calculate the slope of the line.

That is expressed using the formula

$$m=\frac{y_2-y_1}{x_2-x_1}$$

The given points are

$$(x_1,y_1)=(3,3)$$
$$(x_2,y_2)=(-1,2)$$

Substitute the values to obtain the slope

$$\begin{aligned} m &= \frac{y_2 - y_1}{x_2 - x_1} \\ &= \frac{2-3}{-1-3} \\ &= \frac{1}{4} \end{aligned}$$

The equation of line representing the slope intercept form is

$y = mx + c$ Where m is the slope of the line

The line intercept can be obtained by substituting any of the point.

Substitute $m = \frac{1}{4}, (x_1, y_1) = (3,3)$ in the slope intercept form equation

$$3 = 3 \times \frac{1}{4} + c$$

$$c = 3 - \frac{3}{4}$$

$$c = \frac{12-3}{4}$$

$$c = \frac{9}{4}$$

Hence substitute slope m and intercept c values in the above slope intercept equation, which give us

$$y = \frac{1}{4}x + \frac{9}{4}$$

$$4y = x + 9$$

$$x - 4y + 9 = 0$$

Therefore the equation of the line that passes through the given pair of lines is $\boxed{x - 4y + 9 = 0}$.

Answer 65MYS.

Consider the following equation

$$h(x) = 3x + 2$$

The objective is to find each value of the given equation.

Substitute the value of $x = -4$ in the above relation to obtain $h(-4)$.

$$\begin{aligned} h(-4) &= 3x + 2 \\ &= 3 \times -4 + 2 \\ &= -12 + 2 \\ &= -10 \end{aligned}$$

Therefore the value of $h(-4)$ is $\boxed{-10}$.

Answer 66MYS.

Consider the following equation

$$h(x)=3x+2$$

The objective is to find each value of the given equation.

Substitute the value of $x=2$ in the above relation to obtain $h(2)$.

$$\begin{aligned} h(2)&=3x+2\\ &=3\times 2+2\\ &=6+2\\ &=8 \end{aligned}$$

Therefore the value of $h(2)$ is $\boxed{8}$.

Answer 67MYS.

Consider the following equation

$$h(x)=3x+2$$

The objective is to find each value of the given equation.

Substitute the value of $x=w$ in the above relation to obtain $h(w)$.

$$\begin{aligned} h(2)&=3x+2\\ &=3\times w+2\\ &=3w+2 \end{aligned}$$

Therefore the value of $h(w)$ is $\boxed{3w+2}$.

Answer 68MYS.

Consider the following equation

$$h(x)=3x+2$$

The objective is to find each value of the given equation.

Substitute the value of $x=r-6$ in the above relation to obtain $h(r-6)$.

$$\begin{aligned} h(2)&=3x+2\\ &=3\times(r-6)+2\\ &=3(r-6)+2\\ &=3r-18+2\\ &=3r-16 \end{aligned}$$

Therefore the value of $h(r-6)$ is $\boxed{3r-16}$.

Answer 69MYS.

Consider the following equation

$$\frac{3}{4}=\frac{x}{8}$$

The objective is to solve the proportion.

Solve the proportion by cross multiplication,

$$\frac{3}{4}=\frac{x}{8}$$

$$x=\cancel{8}^{2}\times\frac{3}{\cancel{4}}$$

$$x=6$$

Therefore the value of x is $\boxed{x=6}$.

Answer 70MYS.

Consider the following equation

$$\frac{t}{1.5}=\frac{2.4}{1.6}$$

The objective is to solve the proportion.

Solve the proportion by cross multiplication,

$$\frac{t}{1.5}=\frac{2.4}{1.6}$$

$$t=1.5\times\frac{\overset{0.6}{\cancel{2.4}}}{\underset{0.4}{\cancel{1.6}}}$$

$$t=1.5\times1.5$$

$$t=2.25$$

Therefore the value of t is $\boxed{t=2.25}$.

Answer 71MYS.

Consider the following equation

$$\frac{w+2}{5}=\frac{7}{5}$$

The objective is to solve the proportion.

Solve the proportion by cross multiplication,

$$w+2=\frac{7}{\cancel{5}}\times\cancel{5}$$

$$w+2=7$$

$$w=7-2$$

$$w=5$$

Therefore the value of w is $\boxed{w=5}$.

Answer 72MYS.

Consider the following equation

$$\frac{x}{3}=\frac{x+15}{15}$$

The objective is to solve the proportion.

Solve the proportion by cross multiplication,

$$\frac{x}{3}=\frac{x+15}{15}$$
$$x\times 15=3(x+15)$$
$$15x=3x+45$$
$$15x-3x=45$$
$$12x=45$$

Therefore the value of solution is $\boxed{12x=45}$.

Answer 73MYS.

Consider the following equation

$$5x-3=32$$

The objective is to solve the equation.

Simplify the given equation by adding 3 on both sides.

$$5x-3=32$$
$$5x-3+3=32+3$$
$$5x=35$$

Now divide both sides with 7 in order to calculate the value of x.

$$5x=35$$
$$\frac{\cancel{5}x}{\cancel{5}}=\frac{3\cancel{5}^{7}}{\cancel{5}}$$
$$x=7$$

Therefore, the solution of the given equation is $\boxed{x=7}$.

Answer 74MYS.

Consider the following equation

$$4t+9=14$$

The objective is to solve the equation.

Simplify the given equation by subtracting 9 on both sides.

$$4t+9=14$$
$$4t+9-9=14-9$$
$$4t=5$$

Now divide both sides with 5 in order to calculate the value of t.

$$4t = 5$$
$$t = \frac{5}{4}$$

Therefore, the solution of the given equation is $\boxed{t = \frac{5}{4}}$.

Answer 75MYS.

Consider the following equation

$$6y - 1 = 4y + 23$$

The objective is to solve the equation.

Simplify the given equation by taking y terms on one side and numbers on other side.

$$6y - 1 = 4y + 23$$
$$6y - 4y = 23 + 1$$
$$2y = 24$$

Now divide both sides with 2 in order to calculate the value of y.

$$2y = 24$$
$$\frac{2y}{2} = \frac{24}{2}$$
$$y = 12$$

Therefore, the solution of the given equation is $\boxed{y = 12}$.

Answer 76MYS.

Consider the following equation

$$\frac{14g + 5}{6} = 9$$

The objective is to solve the equation.

Simplify the given equation by doing cross multiplication.

$$14g + 5 = 9 \times 6$$
$$14g + 5 = 54$$
$$14g = 54 - 5$$
$$14g = 49$$

Now divide both sides with 14 in order to calculate the value of g.

$$14g = 49$$

$$\frac{14g}{14} = \frac{\overset{7}{\cancel{49}}}{\underset{2}{\cancel{14}}} \quad 7\times 2 = 14,\ 7\times 7 = 49$$

$$g = \frac{7}{2}$$

Therefore, the solution of the given equation is $\boxed{g = \frac{7}{2}}$.

Answer 77MYS.

Consider the following equation

$$5a + 6 = 9a - (7a + 18)$$

The objective is to solve the equation.

Simplify the given equation by taking "a" terms on one side and numbers on other side.

$$5a + 6 = 9a - 7a - 18$$
$$5a - 9a + 7a = -18$$
$$3a = -18 - 6$$
$$3a = -24$$

Now divide both sides with 3 in order to calculate the value of a.

$$3a = -24$$

$$\frac{3a}{3} = \frac{-24}{3} \quad 3\times 8 = 24$$

$$a = -8$$

Therefore, the solution of the given equation is $\boxed{a = -8}$.

Answer 78MYS.

Consider the following equation

$$2(p-4) = 7(p+3)$$

The objective is to solve the equation.

Simplify the given equation by taking "p" terms on one side and numbers on other side.

$$2(p-4) = 7(p+3)$$
$$2p - 8 = 7p + 21$$
$$7p - 2p = -21 - 8$$
$$5p = -29$$

Now divide both sides with 5 in order to calculate the value of p.

$$5p = -29$$

$$\frac{5p}{5} = \frac{-29}{5}$$

$$p = -\frac{29}{5}$$

Therefore, the solution of the given equation is $\boxed{p = -\frac{29}{5}}$.