Chapter 1. Language of Algebra

Ex. 1.7

Answer 1CU.

The objective is to write one conditional statement and label its hypothesis and conclusion.

The conditional statement is

$\boxed{\text{If it is Sunday, then you will go to market}}$

Hypothesis is the part of the conditional following the word 'if'.

Conclusion is the part of the conditional following the word 'then'.

Thus, the hypothesis for the above statement is $\boxed{\text{it is Sunday}}$.

The conclusion for the above statement is $\boxed{\text{you will go to market}}$.

Answer 2CU.

Counterexamples are used to show that a conditional is false.

Counterexample is a specific case in which a statement is false. It takes only one counterexample to show that a statement is false.

Answer 3CU.

Deductive reasoning is a method of using facts, rules, properties and definitions to reach a valid conclusion.

You can use deductive reasoning to determine whether a hypothesis and its conclusion are both true or whether one or both are false.

Answer 4CU.

Consider the following statement:

"If it is January, then it might snow."

The objective is to identify the hypothesis and conclusion.

Hypothesis is the part of the conditional following the word 'if'.

Conclusion is the part of the conditional following the word 'then'.

Thus, the hypothesis for the above statement is $\boxed{\text{it is January}}$.

The conclusion for the above statement is $\boxed{\text{it might snow}}$.

Answer 5CU.

Consider the following statement:

"If you play tennis, then you run fast."

The objective is to identify the hypothesis and conclusion.

Hypothesis is the part of the conditional following the word 'if'.

Conclusion is the part of the conditional following the word 'then'.

Thus, the hypothesis for the above statement is $\boxed{\text{you play tennis}}$.

The conclusion for the above statement is $\boxed{\text{you run fast}}$.

Answer 6CU.

Consider the following statement:

"If $34-3x=16$, then $x=6$."

The objective is to identify the hypothesis and conclusion.

Hypothesis is the part of the conditional following the word 'if'.

Conclusion is the part of the conditional following the word 'then'.

Thus, the hypothesis for the above statement is $\boxed{34-3x=16}$.

The conclusion for the above statement is $\boxed{x=6}$.

Answer 7CU.

The above conditional statement is written without using the words 'if' and 'then'.

Thus, the hypothesis for the above statement is $\boxed{\text{Lance does not have homework}}$.

The conclusion for the above statement is $\boxed{\text{he watches television}}$.

The statement in if-then form is

$\boxed{\text{If Lance does not have homework, then he watches television}}$.

Answer 8CU.

The above conditional statement is written without using the words 'if' and 'then'.

Thus, the hypothesis for the above statement is $\boxed{\text{a number is divisible by 10}}$.

The conclusion for the above statement is $\boxed{\text{it is also divisible by 5}}$.

The statement in if-then form is

$\boxed{\text{If a number is divisible by 10, then it is also divisible by 5}}$.

Answer 9CU.

The above conditional statement is written without using the words 'if' and 'then'.

Thus, the hypothesis for the above statement is $\boxed{\text{a quadrilateral with four right angles}}$.

The conclusion for the above statement is $\boxed{\text{it is a rectangle}}$.

The statement in if-then form is

$\boxed{\text{If a quadrilateral has four right angles, then it is a rectangle}}$.

Answer 10CU.

Check:

$$\frac{10,452}{2} = 5,226$$

True

The number 10,452 is divisible by 2.

The conclusion is valid.

Answer 11CU.

Consider the following statement:

"If the last digit of a number is 2, then the number is divisible by 2."

The statement is: the number is divisible by 2.

You can use deductive reasoning to determine whether a hypothesis and its conclusion are both true or whether one or both are false.

The conclusion in the statement is true. But the last digit of the number may be any even number.

If the last digit is 4, then the hypothesis is not true.

Thus, there is $\boxed{\text{no valid conclusion}}$.

Answer 12CU.

Consider the following statement:

"If the last digit of a number is 2, then the number is divisible by 2."

The statement is: the number is 946.

You can use deductive reasoning to determine whether a hypothesis and its conclusion are both true or whether one or both are false.

The last digit of the number is not 2. Thus, the hypothesis in the statement is not true. But the number is divisible by 2.

The conclusion of the statement is true.

Answer 13CU.

If Anna is in school, it is not necessary that she has a science class. She may have an arts class or any other class also.

Thus, a counterexample to prove the statement as false is

$\boxed{\text{Anna could have a shedule without science class}}$.

Answer 14CU.

If you can read 8 pages in 30 minutes, then it can not be determined that you can read any book in a day. A book may have so many pages to read which is beyond your capacity of reading in a day.

Thus, a counterexample to prove the statement as false is

$\boxed{\text{A book may have so many pages to read which is beyond your capacity of reading in a day}}$

Answer 15CU.

The square of a number is not greater than the number always.

For example, let $x = 1$.

Now,

$$1^2 = 1$$

Thus, the square of 1 is equal to 1 itself.

Also,

$$0^2 = 0$$

Thus, a counterexample to prove the statement as false is $\boxed{x = 1}$.

Answer 16CU.

For $x = 15$,

$$\begin{aligned} 3(15) + 7 &\geq 52 \\ 45 + 7 &\geq 52 \\ 52 &\geq 52 \end{aligned}$$

Thus, the inequality holds true for $x = 15$.

So, if $3x + 7 \geq 52$, then $x \geq 15$.

Thus, a counterexample to prove the statement as false is $\boxed{x = 15}$.

Answer 17CU.

The square of a number is not greater than the number always.

For example, let $x = 1$.

Now,

$$1^2 = 1$$

Thus, the square of 1 is equal to 1 itself.

Also,

$$0^2 = 0$$

Thus, the correct option for counterexample to prove the statement as false is $\boxed{(A)}$.

Answer 18PA.

Consider the following statement:

"If both parents have red hair, then their children have red hair."

The objective is to identify the hypothesis and conclusion.

Hypothesis is the part of the conditional following the word 'if'.

Conclusion is the part of the conditional following the word 'then'.

Thus, the hypothesis for the above statement is $\boxed{\text{both parents have red hair}}$.

The conclusion for the above statement is $\boxed{\text{their children have red hair}}$.

Answer 19PA.

Consider the following statement:

"If you are in Hawaii, then you are in the tropics."

The objective is to identify the hypothesis and conclusion.

Hypothesis is the part of the conditional following the word 'if'.

Conclusion is the part of the conditional following the word 'then'.

Thus, the hypothesis for the above statement is $\boxed{\text{you are in Hawaii}}$.

The conclusion for the above statement is $\boxed{\text{you are in the tropics}}$.

Answer 20PA.

Consider the following statement:

"If $2n-7>25$, then $n>16$."

The objective is to identify the hypothesis and conclusion.

Hypothesis is the part of the conditional following the word 'if'.

Conclusion is the part of the conditional following the word 'then'.

Thus, the hypothesis for the above statement is $\boxed{2n-7>25}$.

The conclusion for the above statement is $\boxed{n>16}$.

Answer 21PA.

Consider the following statement:

"If $4(b+9)\le 68$, then $b\le 8$."

The objective is to identify the hypothesis and conclusion.

Hypothesis is the part of the conditional following the word 'if'.

Conclusion is the part of the conditional following the word 'then'.

Thus, the hypothesis for the above statement is $\boxed{4(b+9)\le 68}$.

The conclusion for the above statement is $\boxed{b\le 8}$.

Answer 22PA.

Consider the following statement:

"If $a=b$, then $b=a$."

The objective is to identify the hypothesis and conclusion.

Hypothesis is the part of the conditional following the word 'if'.

Conclusion is the part of the conditional following the word 'then'.

Thus, the hypothesis for the above statement is $\boxed{a=b}$.

The conclusion for the above statement is $\boxed{b=a}$.

Answer 23PA.

Consider the following statement:

"If $a = b$ and $b = c$, then $a = c$."

The objective is to identify the hypothesis and conclusion.

Hypothesis is the part of the conditional following the word 'if'.

Conclusion is the part of the conditional following the word 'then'.

Thus, the hypothesis for the above statement is $\boxed{a = b \text{ and } b = c}$.

The conclusion for the above statement is $\boxed{a = c}$.

Answer 24PA.

The above conditional statement is written without using the words 'if' and 'then'.

Thus, the hypothesis for the above statement is $\boxed{\text{it is Monday}}$.

The conclusion for the above statement is $\boxed{\text{the trash is picked up}}$.

The statement in if-then form is

$\boxed{\text{If it is Monday, then the trash is picked up}}$.

Answer 25PA.

The above conditional statement is written without using the words 'if' and 'then'.

Thus, the hypothesis for the above statement is $\boxed{\text{it is after school}}$.

The conclusion for the above statement is $\boxed{\text{Greg will call}}$.

The statement in if-then form is

$\boxed{\text{If it is after school, then Greg will call}}$.

Answer 26PA.

The above conditional statement is written without using the words 'if' and 'then'.

Thus, the hypothesis for the above statement is $\boxed{\text{all sides of a triangle are congruent}}$.

The conclusion for the above statement is $\boxed{\text{it is an equilateral triangle}}$.

The statement in if-then form is

$\boxed{\text{If all sides of a triangle are congruent, then it is an equilateral triangle}}$.

Answer 27PA.

The above conditional statement is written without using the words 'if' and 'then'.

Thus, the hypothesis for the above statement is $\boxed{\text{a number is divisible by 9}}$.

The conclusion for the above statement is $\boxed{\text{the sum of its digits is a multiple of 9}}$.

The statement in if-then form is

$\boxed{\text{If a number is divisible by 9, then the sum of its digits is a multiple of 9}}$.

Answer 28PA.

The above conditional statement is written without using the words 'if' and 'then'.

Thus, the hypothesis for the above statement is $\boxed{x = 8}$.

The conclusion for the above statement is $\boxed{x^2 - 3x = 40}$.

The statement in if-then form is

$\boxed{\text{If } x = 8, \text{ then } x^2 - 3x = 40}$.

Answer 29PA.

The above conditional statement is written without using the words 'if' and 'then'.

Thus, the hypothesis for the above statement is $\boxed{s > 9}$.

The conclusion for the above statement is $\boxed{4s + 6 > 42}$.

The statement in if-then form is $\boxed{\text{If } s > 9, \text{ then } 4s + 6 > 42}$.

Answer 31PA.

The statement from the problem follows that if a VCR costs less than \$150, then Ian will buy a VCR.

The objective is to determine whether a valid conclusion follows when the VCR costs \$99.

As $\$99 < \$150$, so the cost of the VCR satisfies the condition of the statement. So, Ian will buy a VCR. Thus, a valid conclusion is $\boxed{\text{Ian will buy a VCR}}$.

Answer 32PA.

Consider the following statement:

"If a VCR costs less than $150, then Ian will buy a VCR for the condition."

The condition is: Ian will not buy a VCR.

You can use deductive reasoning to determine whether a hypothesis and its conclusion are both true or whether one or both are false.

The VCR may cost more than $150 and the VCR may cost less than $150.

There is $\boxed{\text{no valid conclusion}}$. The

$\boxed{\text{hypothesis does not say that Ian won't buy a VCR if it costs \$150 or more}}$.

Answer 33PA.

The statement from the problem follows that if a VCR costs less than $150, then Ian will buy a VCR.

The objective is to determine whether a valid conclusion follows when the VCR costs $199.

There is $\boxed{\text{no valid conclusion}}$. The

$\boxed{\text{hypothesis does not say that Ian won't buy a VCR if it costs \$150 or more}}$.

Answer 34PA.

Consider the following statement:

"If a VCR costs less than $150, then Ian will buy a VCR for the condition."

The condition is: A DVD player costs $229.

You can use deductive reasoning to determine whether a hypothesis and its conclusion are both true or whether one or both are false.

In the conditional statement, the cost of DVD player is not mentioned.

Thus, there is $\boxed{\text{no valid conclusion}}$. The

$\boxed{\text{cost of DVD player is not mentioned in the statement}}$.

Answer 35PA.

Consider the following statement:

"If a VCR costs less than $150, then Ian will buy a VCR for the given condition."

The condition is: Ian bought 2 VCRs.

You can use deductive reasoning to determine whether a hypothesis and its conclusion are both true or whether one or both are false.

In the conditional statement, it is not mentioned that Ian buys 2 VCRs.

Thus, there is $\boxed{\text{no valid conclusion}}$.

Answer 36PA.

It is not necessary that a person who born in Texas, he or she will live in Texas only. The person may live in outside Texas also.

Thus, a counterexample to prove the statement as false is

$\boxed{\text{A person born in Texas, but live in India}}$.

Answer 37PA.

It is not necessary that a professional basketball player will play in the United States only. He can play anywhere in the world. Moreover, there ay be professional basketball players in other countries also.

Thus, a counterexample to prove the statement as false is

$\boxed{\text{There is a professional team in Canada}}$.

Answer 38PA.

It is not necessary that a baby wearing blue clothes will be a boy. A baby can wear any color of clothes.

Thus, a counterexample to prove the statement as false is

$\boxed{\text{A girl baby wear blue clothes}}$.

Answer 39PA.

If a person is left-handed, then some members of the family be right handed. It is not necessary that each member of that person's family is left-handed as left-handed people can have right-handed parents.

Thus, a counterexample to prove the statement as false is

$\boxed{\text{Left-handed people can have right-handed parents}}$.

Answer 40PA.

The product of an even number and an odd number may be even. For example,

$$2 \times 3 = 6$$

Here 2 is even and 3 is odd.

It is not necessary that each number of the product is even.

Thus, a counterexample to prove the statement as false is

$\boxed{\text{The product of 2 and 3 is 6, which is even}}$.

Answer 41PA.

If a whole number is greater than 7, then it is not necessary that two times the number is greater than 16.

For example, 8 is a whole number which is greater than 7.

Find two times of 8.

$$2 \times 8 = 16$$

Thus, two times the umber is equal to 16, not greater than 16.

Thus, a counterexample to prove the statement as false is

$\boxed{\text{The product of 2 and 8 is equal to 16, that is, } 2 \cdot 8 = 16}$.

Answer 42PA.

For $n = 15$,

$$\begin{aligned} 4(15) - 8 &= 60 - 8 \\ &= 52 \\ &\geq 52 \end{aligned}$$

Thus, the inequality holds true for $n = 15$.

So, if $4n - 8 \geq 52$, then $n \geq 15$.

Thus, a counterexample to prove the statement as false is $\boxed{\text{For } n = 15,\ 4n - 8 = 52}$.

Answer 43PA.

For $x = 2$ and $y = \frac{1}{2}$,

$$2 \cdot \frac{1}{2} = 1$$

Thus, the equation holds true for $x = 2$ and $y = \frac{1}{2}$.

So, if $x \cdot y = 1$, it is not necessary that *x* or *y* must equal 1.

Thus, a counterexample to prove the statement as false is $\boxed{2 \cdot \frac{1}{2} = 1}$.

Answer 44PA.

To make the conditional true, label the point *Q* in between *P* and *R* as shown below:

Answer 45PA.

Counterexample is a specific case in which a statement is false. Counterexample is used to show that a conditional statement is false.

The point *Q* may be outside *P* and *R*. To give a counterexample, label the point outside *P* and *R* as shown below:

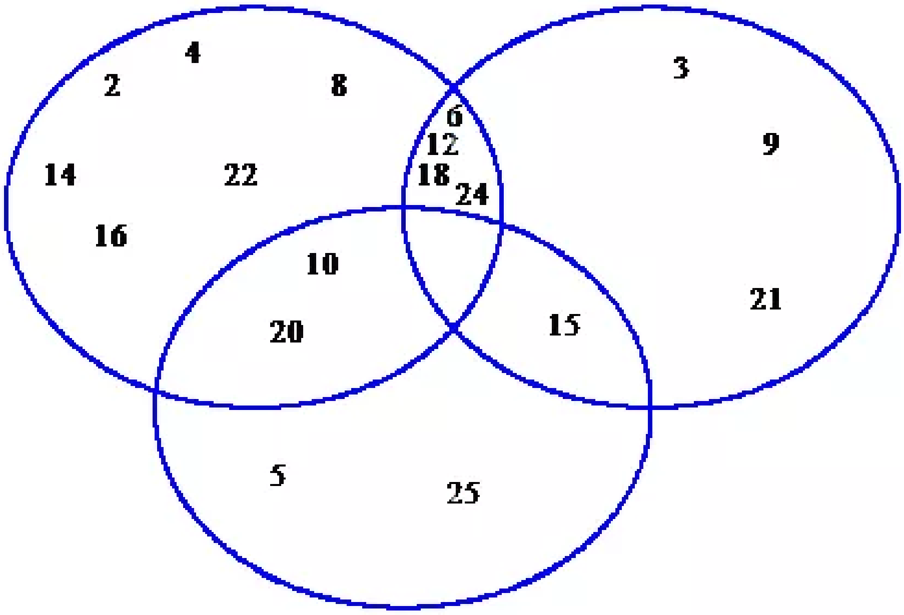
Answer 47PA.

The numbers divisible by 2 are: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24.

The numbers divisible by 3 are: 3, 6, 9, 12, 15, 18, 21, 24.

The numbers divisible by 5 are: 5, 10, 15, 20, 25.

The numbers are placed in their appropriate places on the diagram as shown below:



Numbers that end in 0, 2, 4, 6, or 8 are in the "divisible by 2" circle.

Numbers whose digits have a sum divisible by 3 are in the "divisible by 3" circle.

Numbers that end in 0 or 5 are in the "divisible by 5" circle.

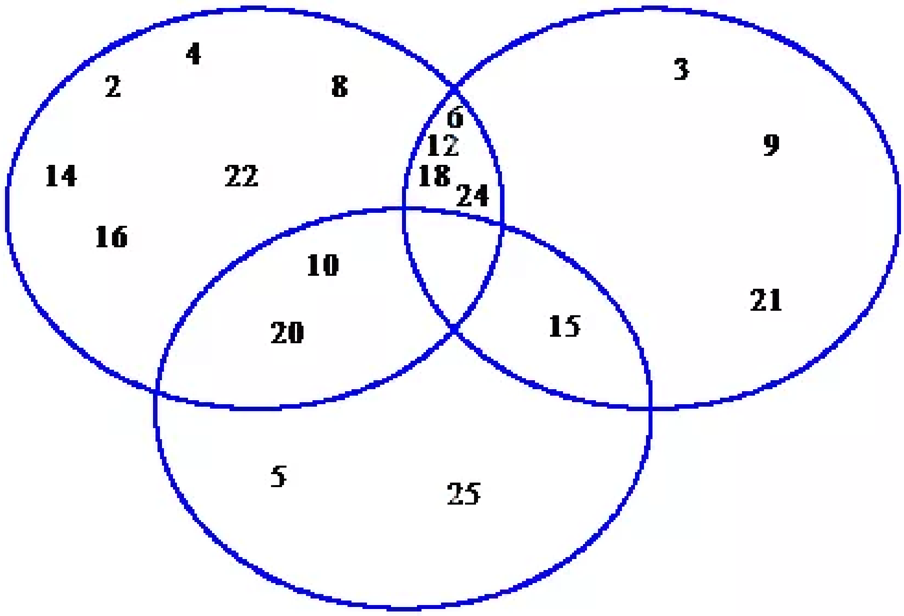
Answer 48PA.

The numbers divisible by 2 are: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24.

The numbers divisible by 3 are: 3, 6, 9, 12, 15, 18, 21, 24.

The numbers divisible by 5 are: 5, 10, 15, 20, 25.

The numbers are placed in their appropriate places on the diagram as shown below:



The numbers divisible by 2 or 3 are: 6, 12, 18, 24.

Notice that the numbers divisible by 2 or 3 are multiple of 6.

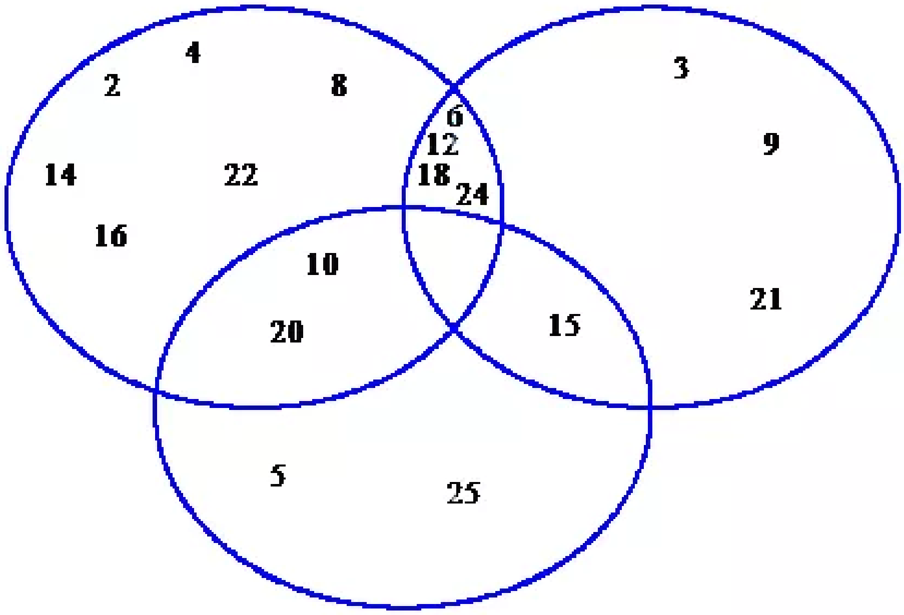
Answer 49PA.

The numbers divisible by 2 are: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24.

The numbers divisible by 3 are: 3, 6, 9, 12, 15, 18, 21, 24.

The numbers divisible by 5 are: 5, 10, 15, 20, 25.

The numbers are placed in their appropriate places on the diagram as shown below:



Numbers that end in 0, 2, 4, 6, or 8 are in the “divisible by 2” circle.

Numbers whose digits have a sum divisible by 3 are in the “divisible by 3” circle.

Numbers that end in 0 or 5 are in the “divisible by 5” circle.

The numbers divisible by 2 or 3 are: 6, 12, 18, 24.

Notice that the numbers divisible by 2 or 3 are multiple of 6.

The objective is to give a counterexample for these conclusions.

Counterexample is a specific case in which a statement is false. Counterexample is used to show that a conditional statement is false.

As there is no example to make the conclusions false, so there is no counterexample for these conclusions.

Answer 51P.

The objective is to write how logical reasoning is helpful in cooking.

You can use if-then statements to help determine when food is finished cooking.

Hypothesis: you have small, underpopped kernels.

Conclusion: you have not used enough oil in your pan.

The other examples are:

If the gelatin is firm and rubbery, then it is ready to eat.

If the water is boiling, lower the temperature.

Answer 52PA.

Consider the following hypothesis:

$$14n-12\geq 100$$

The objective is to find the value of *n*, which makes the statement true.

Solve the inequality for *n*.

$$14n-12\geq 100$$

$$14n-12+12\geq 100+12 \text{ [Add 12 to each side]}$$

$$14n\geq 112$$

$$\frac{14n}{14}\geq\frac{112}{14} \text{ [Divide each side by 14]}$$

$$n\geq 8$$

Therefore, the value of *n*, which makes the statement true is $n\geq 8$.

Thus, the blank can be filled up by $\boxed{8}$.

Answer 53PA.

Consider that the symbol # is defined as

$$\#x=\frac{x^3}{2} \;\ldots\ldots\; (1)$$

The objective is to find the value of $\#4$.

To find the value of $\#4$, substitute $x=4$ in (1).

$$\begin{aligned}\#4&=\frac{4^3}{2}\\&=\frac{64}{2}\\&=32\end{aligned}$$

Therefore, $\#4=32$.

Thus, the correct option for the value of $\#4$ is $\boxed{\text{C}}$.

Answer 54MYS.

Consider the expression $2x+5y+9x$.

The objective is to simplify the expression.

Use commutative property of addition $a+b=b+a$ first.

$2x+5y+9x$

$=2x+9x+5y$ [Use commutative property]

$=(2+9)x+5y$ $[\text{Use Distributive property}: (b+c)a=ba+ca]$

$=11x+5y$ [Use Substitution property]

Therefore, $2x+5y+9x=\boxed{11x+5y}$.

Answer 55MYS.

Consider the expression $a+9b+6b$.

The objective is to simplify the expression.

Use Distributive property of addition first.

$a+9b+6b$

$=a+(9+6)b$ $[\text{Use Distributive property}: (b+c)a=ba+ca]$

$=a+15b$ [Use Substitution property]

Therefore, $a+9b+6b=\boxed{a+15b}$.

Answer 56MYS.

Consider the expression $\frac{3}{4}g+\frac{2}{5}f+\frac{5}{8}g$.

The objective is to simplify the expression.

Use commutative property of addition, $a+b=b+a$ first.

$\frac{3}{4}g+\frac{2}{5}f+\frac{5}{8}g$

$=\frac{2}{5}f+\frac{3}{4}g+\frac{5}{8}g$ [Use commutative property]

$=\frac{2}{5}f+\left(\frac{3}{4}+\frac{5}{8}\right)g$ $[\text{Use Distributive property}:(b+c)a=ba+ca]$

$=\frac{2}{5}f+\left(\frac{6+5}{8}\right)g$ [Simplify using the Least Common denominator 8]

$=\frac{2}{5}f+\frac{11}{8}g$ [Use Substitution property]

Therefore, $\frac{3}{4}g+\frac{2}{5}f+\frac{5}{8}g=\boxed{\frac{2}{5}f+\frac{11}{8}g}$.

Answer 57MYS.

Consider the expression $4(5mn+6)+3mn$.

The objective is to simplify the expression.

Use Distributive property of addition first.

$4(5mn+6)+3mn$

$=4\cdot(5mn)+4\cdot 6+3mn$ $[\text{Use Distributive property}: a(b+c)=ab+ac]$

$=4\cdot 5mn+24+3mn$ [Simplify]

$=20mn+24+3mn$ [Multiply]

$=20mn+3mn+24$ [Use commutative property: $a+b=b+a$]

$=(20+3)mn+24$ $[\text{Use Distributive property}: a(b+c)=ab+ac]$

$=23mn+24$ [Use Substitution property]

Therefore, $4(5mn+6)+3mn=\boxed{23mn+24}$.

Answer 58MYS.

Consider the expression $2(3a+b)+3b+4$.

The objective is to simplify the expression.

Use Distributive property of addition first.

$2(3a+b)+3b+4$

$=2(3a)+2\cdot b+3b+4$ $[\text{Use Distributive property}: a(b+c)=ab+ac]$

$=6a+2b+3b+4$ [Multiply]

$=6a+(2+3)b+4$ $[\text{Use Distributive property}: (b+c)a=ba+ca]$

$=6a+5b+4$ [Use Substitution property]

Therefore, $2(3a+b)+3b+4=\boxed{6a+5b+4}$.

Answer 59MYS.

Consider the expression $6x^2+5x+3(2x^2)+7x$.

The objective is to simplify the expression.

Simplify the expression as follows:

$$6x^2+5x+3(2x^2)+7x$$

$$=6x^2+5x+6x^2+7x \quad \left[\text{Use Distributive property}: a(b+c)=ab+ac\right]$$

$$=6x^2+6x^2+5x+7x \quad [\text{Use commutative property: } a+b=b+a]$$

$$=(6+6)x^2+(5+7)x \quad \left[\text{Use Distributive property}:(b+c)a=ba+ca\right]$$

$$=12x^2+12x \quad [\text{Use Substitution property}]$$

Therefore, $6x^2+5x+3(2x^2)+7x=\boxed{2x^2+12x}$.

Answer 60MYS.

Consider that the amount of water used by the family each day flushing water toilet is 100 gallons.

The amount of water used by the family each day showering and bathing is 80 gallons.

The amount of water used by the family each day in bathroom sink is 8 gallons.

The total amount of water used by the family each day is $100+80+8$.

The total amount of water used by the family in *d* days is $(100+80+8)d$.

Simplify the expression as follows:

$$(100+80+8)d$$
$$=188d$$

Thus, the two expressions to represent the total amount of water used by the family in *d* days are $\boxed{(100+80+8)d \text{ or } 188d}$.

Answer 61MYS.

Solve the equation for *y*.

$$1(n)=64$$

$$n=64 \quad [\text{Use Identity property of multiplication}]$$

Therefore, $n=\boxed{64}$.

Answer 62MYS.

Solve the equation for *y*.

$12 + 7 = 12 + n$

$7 = n$ [Use Substitution property]

Therefore, $n = \boxed{7}$.

Answer 63MYS.

Solve the equation for *y*.

$(9 - 7)5 = 2n$

$(2)5 = 2n$ [Use Substitution property]

$5 = n$ [Divide each side by 2]

Therefore, $n = \boxed{5}$.

Answer 64MYS.

Solve the equation for *n*.

$\frac{1}{4}n = 1$

$n = 4$ [Use Inverse property of multiplication]

Therefore, $n = \boxed{4}$.

Answer 65MYS.

Solve the equation for *n*.

$n + 18 = 18$

$n = 0$ [Use Identity property of addition]

Therefore, $n = \boxed{0}$.

Answer 6MYS.

Solve the equation for *y*.

$36n = 0$

$n = 0$ [Use multiplication property of zero; $36(0) = 0$]

Therefore, $n = \boxed{0}$.

Answer 67MYS.

Check:

Substitute $x = 41$ in (1).

$$5(7)+6 \stackrel{?}{=} 41$$

$35+6 \stackrel{?}{=} 41$ [Multiply]

$41 = 41$ [Add]

True

Therefore, the solution is checked.

Answer 68MYS.

Check:

Substitute $m = 76$ in (1).

$$7(4^2)-6^2 \stackrel{?}{=} 76$$

$7(16)-36 \stackrel{?}{=} 76$ [Evaluate the exponents]

$112-36 \stackrel{?}{=} 76$ [Multiply]

$76 = 76$

True

Therefore, the solution is checked.

Answer 68MYS.

Consider the following equation:

$$p = \frac{22-(13-5)}{28 \div 2^2} \quad \ldots\ldots (1)$$

The objective is to solve the equation.

To solve the equation, evaluate the exponent first.

$$p = \frac{22-(13-5)}{28 \div 2^2}$$

$p = \frac{22-8}{28 \div 4}$ [Evaluate the exponent and simplify numerator]

$p = \frac{14}{28 \cdot \frac{1}{4}}$ [Write division as multiplication and perform subtraction]

$p = \frac{14}{7}$ [Multiply]

$p = 2$ [Divide]

Thus, the solution of the equation is $p = \boxed{2}$.

Answer 70MYS.

The objective is to write an algebraic expression for the verbal expression: "the product of 8 and a number *x* raised to the fourth power."

The algebraic expression for the verbal expression "a number *x* raised to the fourth power" is .

The word "product" corresponds to multiplication.

To find the algebraic expression for the complete verbal expression, multiply x^4 by 8.

Therefore, the algebraic expression for the complete verbal expression is $\boxed{8x^4}$.

Answer 71MYS.

The objective is to write an algebraic expression for the verbal expression: "three times a number *n* decreased by 10."

The word "times" corresponds to multiplication and the word "decreased by" corresponds to subtraction.

The algebraic expression for the verbal expression "three times a number *n*" is $3n$.

To find the algebraic expression for the complete verbal expression, subtract 10 from $3n$.

Therefore, the algebraic expression for the complete verbal expression is $\boxed{3n-10}$.

Answer 72MYS.

The objective is to write an algebraic expression for the verbal expression: "twelve more than the quotient of a number *a* and 5."

The word "quotient" corresponds to division and the word "more than" corresponds to addition.

The algebraic expression for the verbal expression "the quotient of a number *a* and 5" is $\frac{a}{5}$.

To find the algebraic expression for the complete verbal expression, add 12 to $\frac{a}{5}$.

Therefore, the algebraic expression for the complete verbal expression is $\boxed{\frac{a}{5}+12}$.

Answer 73MYS.

The objective is to evaluate 40% of 90.

The expression 40% of 90 is equivalent to

$$\frac{40}{100}\cdot(90)$$

$=4\cdot 9$ [Simplify]

$=36$ [Multiply]

Therefore, 40% of 90 is $\boxed{36}$.

Answer 74MYS.

The objective is to evaluate 23% of 2500.

The expression 23% of 2500 is equivalent to

$$\frac{23}{100}\cdot(2500)$$

$=23\cdot 25$ [Divide]

$=575$ [Multiply]

Therefore, 23% of 2500 is $\boxed{575}$.

Answer 75MYS.

The objective is to evaluate 18% of 950.

The expression 18% of 950 is equivalent to

$$\frac{18}{100}\cdot(950)$$

$=\frac{18}{2}\cdot(19)$ [Simplify]

$=9\cdot(19)$ [Divide]

$=171$ [Multiply]

Therefore, 18% of 950 is $\boxed{171}$.

Answer 76MYS.

The objective is to evaluate 38% of 345.

The expression 38% of 345 is equivalent to

$$\frac{38}{100}\cdot(345)$$

$=\frac{38}{20}\cdot(69)$ [Simplify]

$=\frac{19}{10}\cdot(69)$ [Cancel out common factors in numerator and denominator]

$=(1.9)\cdot(69)$ [Divide]

$=131.1$ [Multiply]

Therefore, 38% of 345 is $\boxed{131.1}$.

Answer 77MYS.

The objective is to evaluate 42.7% of 528.

The expression 42.7% of 528 is equivalent to

$$\frac{42.7}{100}\cdot(528)$$

$= (0.427)\cdot(528)$ [Divide 42.7 by 100]

$= 225.5$ [Multiply]

Therefore, 42.7% of 528 is $\boxed{225.5}$.

Answer 78MYS.

The objective is to evaluate 67.4% of 388.

The expression 67.4% of 388 is equivalent to

$$\frac{67.4}{100}\cdot(388)$$

$= (0.674)\cdot(388)$ [Divide 67.4 by 100]

≈ 261.5 [Multiply; round to the nearest tenth]

Therefore, 67.4% of 388 is $\boxed{261.5}$.