Chapter 2. Real Numbers

Ex. 2.7

Answer 1CU.

Sometimes, the square root of any real number can be negative. For example, the square root of 25 can be both positive and negative.

$$\sqrt{25} = \sqrt{(-5)\times(-5)} = -5$$
$$\sqrt{25} = \sqrt{5\times 5} = 5$$

Answer 2CU.

Any number that can be expressed as the quotient of two integers with a denominator that is not zero is called rational number. For example, 0.23 is a rational number because it can be written as $23/100$. Another example is any whole number like 4. Four is a rational number because it can be written as $4/1$. Any number that cannot be expressed as the quotient of two integers is called irrational number. For example, $\sqrt{5}$ is an irrational number because you cannot simplify it. Another example is π. The value of π is $3.141592...$. This is a non terminating decimal, so π is an irrational number.

Answer 3CU.

The product of two numbers having same sign is always positive. A square root is one of two equal factors of a number. The value of $\sqrt{-25}$ cannot be evaluated by using real numbers because no real number, when multiplied by itself, gives a negative product.

Answer 4CU.

A square root is one of two equal factors of a number. $-\sqrt{25}$ represents the negative square root of 25.

$$25 = 5^2$$

Therefore,

$$-\sqrt{25} = \boxed{-5}$$

Answer 5CU.

A square root is one of two equal factors of a number.

$$\sqrt{1.44} = \sqrt{1.2\times1.2}$$
$$= \boxed{1.2}$$

Answer 6CU.

A square root is one of two equal factors of a number. $\pm\sqrt{\frac{16}{49}}$ represents the positive and negative square root of $\frac{16}{49}$.

$$\frac{16}{49} = \left(\frac{4}{7}\right)^2 \text{ and } \frac{16}{49} = \left(-\frac{4}{7}\right)^2$$

Therefore,

$$\pm\sqrt{\frac{16}{49}} = \boxed{\pm\frac{4}{7}}$$

Answer 7CU.

A square root is one of two equal factors of a number.

$$32 = (5.66)^2$$

Therefore,

$$\sqrt{32} = \boxed{5.66}$$

Answer 8CU.

A square root is one of two equal factors of a number. $-\sqrt{64}$ represents the negative square root of 64.

$$64 = 8^2$$

Therefore,

$$-\sqrt{64} = -8$$

The real number -8 belongs to sets $\boxed{\text{integers}}$ and $\boxed{\text{rationals}}$.

Answer 9CU.

Any number that can be expressed as the quotient of two integers with a denominator that is not zero is called rational number. The real number $\frac{8}{3}$ belongs to sets $\boxed{\text{rationals}}$.

Answer 10CU.

Any number that cannot be expressed as the quotient of two integers is called irrational number. The real number $\sqrt{28}$ belongs to sets $\boxed{\text{irrationals}}$ because you cannot simplify it.

Answer 11CU.

The fraction bar indicates division.

$$\frac{56}{7} = 56 \div 7$$
$$= 8$$

Any number that can be expressed as the quotient of two integers with a denominator that is not zero is called rational number. The real number 8 belongs to sets $\boxed{\text{rationals}}$ because it can be written as $8/1$.

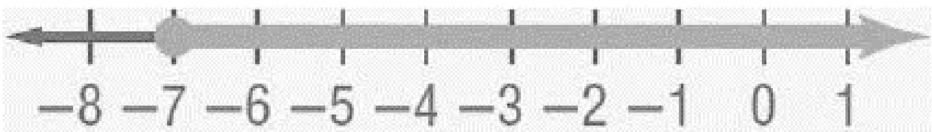
Answer 12CU.

The solution of $x < -3.5$ is all values below -3.5. The graph shown below shows the solution set of $x < -3.5$.

The heavy arrow in the graph indicates that all numbers to the left of -3.5 are included in the graph. The circle at -3.5 indicates that -3.5 is not included in the graph.

Answer 13CU.

The solution of $x \geq -7$ is all values above -7. The graph shown below shows the solution set of $x \geq -7$.



The heavy arrow in the graph indicates that all numbers to the right of -7 are included in the graph. The dot at -7 indicates that -7 is also included in the graph.

Answer 14CU.

The value of $\frac{1}{3}$ is $0.3333333...$ and 0.3 is less than $0.3333333...$ or $\frac{1}{3}$.

$$\boxed{0.3 < \frac{1}{3}}$$

Answer 16CU.

The value of $\frac{1}{6} = 0.16666666...$ and $\sqrt{6} = 2.449489742783178$. This indicates $\frac{1}{6}$ is less than $\sqrt{6}$.

$$\boxed{\frac{1}{6} < \sqrt{6}}$$

Answer 18CU.

Write each number as a decimal.

$$\sqrt{30} = 5.477...$$

$$5\frac{4}{9} = 5.\overline{4}$$

$$\frac{1}{\sqrt{30}} = 0.182...$$

$$13 = 13.000$$

In the given numbers, $\frac{1}{\sqrt{30}}$ is the least value and 13 is the greatest value. The numbers in order from least to greatest is shown below.

$$\boxed{\frac{1}{\sqrt{30}},\ 5\frac{4}{9},\ \sqrt{30},\ 13}$$

Answer 19CU.

First solve the inequality.

$$-\sqrt{a} < -\frac{1}{\sqrt{a}}$$

$$\sqrt{a} > \frac{1}{\sqrt{a}}$$

$$\Rightarrow \quad a > 1$$

In the given options, only 2 is greater than 1.

Hence, the correct option is $\boxed{C}$.

Answer 20PA.

A square root is one of two equal factors of a number.

$$\sqrt{49} = \sqrt{7 \times 7}$$

$$= \boxed{7}$$

Answer 22PA.

A square root is one of two equal factors of a number.

$$\sqrt{5.29} = \sqrt{2.3 \times 2.3}$$
$$= \boxed{2.3}$$

Answer 23PA.

A square root is one of two equal factors of a number.

$$\sqrt{6.25} = \sqrt{2.5 \times 2.5}$$
$$= \boxed{2.5}$$

Answer 24PA.

A square root is one of two equal factors of a number. $-\sqrt{78}$ represents the negative square root of 78.

$$78 = (8.83)^2$$

Therefore,

$$-\sqrt{78} = \boxed{-8.83}$$

Answer 25PA.

A square root is one of two equal factors of a number. $-\sqrt{94}$ represents the negative square root of 94.

$$94 = (9.70)^2$$

Therefore,

$$-\sqrt{94} = \boxed{-9.70}$$

Answer 26PA.

A square root is one of two equal factors of a number. $\pm\sqrt{\frac{36}{81}}$ represents the positive and negative square root of $\frac{36}{81}$.

$$\frac{36}{81} = \left(\frac{6}{9}\right)^2 \quad \text{and} \quad \frac{36}{81} = \left(-\frac{6}{9}\right)^2$$

Therefore,

$$\pm\sqrt{\frac{36}{81}} = \pm\frac{6}{9} \text{ or } \boxed{\pm\frac{2}{3}}$$

Answer 27PA.

A square root is one of two equal factors of a number. $\pm\sqrt{\frac{100}{196}}$ represents the positive and negative square root of $\frac{100}{196}$.

$$\frac{100}{196}=\left(\frac{10}{14}\right)^2 \text{ and } \frac{100}{196}=\left(-\frac{10}{14}\right)^2$$

Therefore,

$$\pm\sqrt{\frac{100}{196}}=\pm\frac{10}{14} \text{ or } \boxed{\pm\frac{5}{7}}$$

Answer 28PA.

A square root is one of two equal factors of a number.

$$\frac{9}{14}=\left(\frac{3}{3.74}\right)^2$$

Therefore,

$$\sqrt{\frac{9}{14}}=\frac{3}{3.74} \text{ or } \boxed{0.80}$$

Answer 29PA.

A square root is one of two equal factors of a number.

$$\frac{25}{42}=\left(\frac{5}{6.48}\right)^2$$

Therefore,

$$\sqrt{\frac{25}{42}}=\frac{5}{6.48} \text{ or } \boxed{0.77}$$

Answer 30PA.

A square root is one of two equal factors of a number. $\pm\sqrt{820}$ represents the positive and negative square root of 820.

$$820=(28.64)^2 \text{ and } 820=(-28.64)^2$$

Therefore,

$$\pm\sqrt{820}=\boxed{\pm 28.64}$$

Answer 31PA.

A square root is one of two equal factors of a number. $\pm\sqrt{513}$ represents the positive and negative square root of 513.

$$513=(22.65)^2 \text{ and } 513=(-22.65)^2$$

Therefore,

$$\pm\sqrt{513}=\boxed{\pm 22.65}$$

Answer 32PA.

Any number that cannot be expressed as the quotient of two integers is called irrational number. The real number $-\sqrt{22}$ belongs to sets $\boxed{\text{irrationals}}$ because you cannot simplify it.

Answer 33PA.

Any number that can be expressed as the quotient of two integers with a denominator that is not zero is called rational number. Also $\frac{36}{6}=6$. The number 6 is also a natural number, whole number and an integer. Therefore, the real number $\frac{36}{6}$ belongs to sets $\boxed{\text{rationals}}$, $\boxed{\text{naturals}}$, $\boxed{\text{wholes}}$ and $\boxed{\text{integers}}$.

Answer 34PA.

Any number that can be expressed as the quotient of two integers with a denominator that is not zero is called rational number. Therefore, the real number $\frac{1}{3}$ belongs to set $\boxed{\text{rationals}}$.

Answer 35PA.

Any number that can be expressed as the quotient of two integers with a denominator that is not zero is called rational number. Therefore, the real number $-\frac{5}{12}$ belongs to set $\boxed{\text{rationals}}$.

Answer 36PA.

Any number that cannot be expressed as the quotient of two integers is called irrational number. The real number $\sqrt{\frac{82}{20}}$ belongs to sets $\boxed{\text{irrationals}}$ because you cannot simplify it.

Answer 38PA.

Any number that can be expressed as the quotient of two integers with a denominator that is not zero is called rational number.

$$\begin{aligned}\sqrt{10.24} &= \sqrt{3.2\times 3.2}\\ &= 3.2\\ &= \frac{32}{10}\end{aligned}$$

Therefore, the real number $\sqrt{10.24}$ belongs to set $\boxed{\text{rationals}}$.

Answer 39PA.

Any number that can be expressed as the quotient of two integers with a denominator that is not zero is called rational number. Therefore, the real number $\frac{-54}{19}$ belongs to set $\boxed{\text{rationals}}$.

Answer 40PA.

Any number that can be expressed as the quotient of two integers with a denominator that is not zero is called rational number. Therefore, the real number $-\frac{3}{4}$ belongs to set $\boxed{\text{rationals}}$.

Answer 41PA.

Any number that can be expressed as the quotient of two integers with a denominator that is not zero is called rational number.

$$\begin{aligned}\sqrt{20.25} &= \sqrt{4.5\times 4.5}\\ &= 4.5\\ &= \frac{45}{10}\end{aligned}$$

Therefore, the real number $\sqrt{20.25}$ belongs to set $\boxed{\text{rationals}}$.

Answer 42PA.

Any number that can be expressed as the quotient of two integers with a denominator that is not zero is called rational number. Also $\frac{18}{3}=6$. The number 6 is also a natural number, whole number and an integer. Therefore, the real number $\frac{18}{3}$ belongs to sets $\boxed{\text{rationals}}$, $\boxed{\text{naturals}}$, $\boxed{\text{wholes}}$ and $\boxed{\text{integers}}$.

Answer 43PA.

Any number that can be expressed as the quotient of two integers with a denominator that is not zero is called rational number.

$$\begin{aligned}\sqrt{2.4025} &= \sqrt{1.55\times 1.55}\\ &= 1.55\\ &= \frac{155}{100}\end{aligned}$$

Therefore, $\sqrt{2.4025}$ belongs to set $\boxed{\text{rationals}}$.

Answer 44PA.

Any number that can be expressed as the quotient of two integers with a denominator that is not zero is called rational number. Therefore, the real number $\frac{-68}{35}$ belongs to set $\boxed{\text{rationals}}$.

Answer 45PA.

Any number that can be expressed as the quotient of two integers with a denominator that is not zero is called rational number. Therefore, the real number $\frac{6}{11}$ belongs to set $\boxed{\text{rationals}}$.

Answer 46PA.

Any number that can be expressed as the quotient of two integers with a denominator that is not zero is called rational number.

$$\begin{aligned}\sqrt{5.5696} &= \sqrt{2.36\times 2.36}\\ &= 2.36\\ &= \frac{236}{100}\end{aligned}$$

Therefore, $\sqrt{5.5696}$ belongs to set $\boxed{\text{rationals}}$.

Answer 47PA.

Any number that cannot be expressed as the quotient of two integers is called irrational number. The real number $\sqrt{\frac{78}{42}}$ belongs to sets $\boxed{\text{irrationals}}$ because you cannot simplify it.

Answer 48PA.

Any number that cannot be expressed as the quotient of two integers is called irrational number. The real number $-\sqrt{9.16}$ belongs to sets $\boxed{\text{irrationals}}$ because you cannot simplify it.

Answer 49PA.

Any number that cannot be expressed as the quotient of two integers is called irrational number. The value of π is $3.141592...$. This is a non terminating decimal, so π is an irrational number.

Answer 50PA.

The time it takes for a falling object to travel a certain distance *d* is given by the equation $t = \sqrt{\frac{d}{16}}$. If Krista dropped a ball from a window $d = 28$ feet above the ground, the time it takes for a falling ball to travel a certain distance $d = 28$ feet is shown below.

$$\begin{aligned} t &= \sqrt{\frac{28}{16}} \\ &= \sqrt{1.75} \\ &= \boxed{1.32 \text{ seconds}} \end{aligned}$$

Answer 51PA.

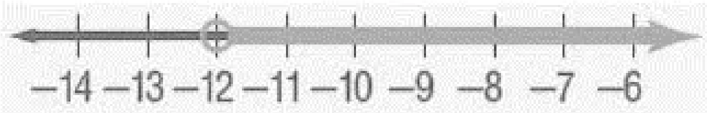
To estimate the speed *s* of a car by measuring the distance *d* in feet a car skids on a dry road, police uses the formula $s = \sqrt{24d}$. If Jerome skidded the distance $d = 43\frac{3}{4}$ or $d = \frac{175}{4}$ feet, he was driving at speed shown below.

$$\begin{aligned} s &= \sqrt{24d} \\ &= \sqrt{24 \times \frac{175}{4}} \\ &= \sqrt{\frac{4200}{4}} \\ &= \sqrt{1050} \\ &= 32.4 \text{ mph} \end{aligned}$$

The speed of 32.4 mph is less than 35 mph $(32.4 < 35)$. Therefore, the officer should $\boxed{\text{not}}$ give Jerome a ticket for speeding.

Answer 52PA.

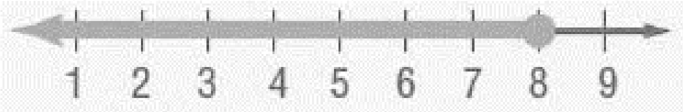
The solution of $x > -12$ is all values above -12. The graph shown below shows the solution set of $x > -12$.



The heavy arrow in the graph indicates that all numbers to the right of -12 are included in the graph. The circle at -12 indicates that -12 is not included in the graph.

Answer 53PA.

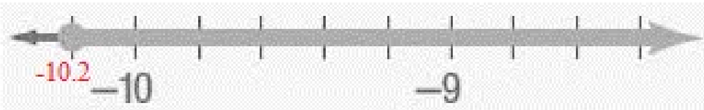
The solution of $x \le 8$ is all values below 8. The graph shown below shows the solution set of $x \le 8$.



The heavy arrow in the graph indicates that all numbers to the left of 8 are included in the graph. The dot at 8 indicates that 8 is also included in the graph.

Answer 54PA.

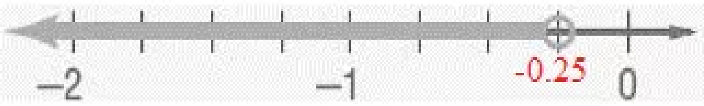
The solution of $x \ge -10.2$ is all values above -10.2. The graph shown below shows the solution set of $x \ge -10.2$.



The heavy arrow in the graph indicates that all numbers to the right of -10.2 are included in the graph. The dot at -10.2 indicates that -10.2 is also included in the graph.

Answer 55PA.

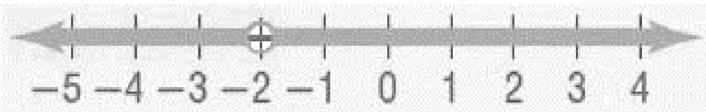
The solution of $x < -0.25$ is all values below -0.25. The graph shown below shows the solution set of $x < -0.25$.



The heavy arrow in the graph indicates that all numbers to the left of -0.25 are included in the graph. The circle at -0.25 indicates that -0.25 is not included in the graph.

Answer 56PA.

The solution of $x \ne -2$ is all values other than -2. The graph shown below shows the solution set of $x \ne -2$.



The heavy arrows in the graph indicate that all numbers to the left of -2 and all numbers to the right of -2 are included in the graph. The circle at -2 indicates that -2 is not included in the graph.

Answer 57PA.

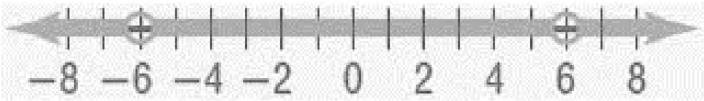
A square root is one of two equal factors of a number. $\pm\sqrt{36}$ represents the positive and negative square root of 36.

$$36=(6)^2 \text{ and } 36=(-6)^2$$

Therefore,

$$\pm\sqrt{36}=\pm 6$$

The solution of $x \neq \pm\sqrt{36}$ is all values other than ± 6. The graph shown below shows the solution set of $x \neq \pm\sqrt{36}$.



The heavy arrows in the graph indicate that all numbers to the left of -6, between -6 and 6 and also all numbers to the right of 6 are included in the graph. The circles at -6 and 6 indicate that ± 6 are not included in the graph.

Answer 58PA.

Write each number as a decimal.

$$\sqrt{5}=2.236...$$
$$5.\overline{72}=5.7272...$$

Therefore,

$$\boxed{5.\overline{72}>\sqrt{5}}$$

Answer 59PA.

Write each number as a decimal.

$$2.\overline{63}=2.6363...$$
$$\sqrt{8}=2.828...$$

Therefore,

$$\boxed{2.\overline{63}<\sqrt{8}}$$

Answer 60PA.

Write each number as a decimal.

$$\frac{1}{7} = 0.1428...$$

$$\frac{1}{\sqrt{7}} = 0.3779...$$

Therefore,

$$\boxed{\frac{1}{7} < \frac{1}{\sqrt{7}}}$$

Answer 62PA.

Write each number as a decimal.

$$\frac{1}{\sqrt{31}} = 0.1796...$$

$$\frac{31}{\sqrt{31}} = 0.1796...$$

Therefore,

$$\boxed{\frac{1}{31} = \frac{31}{\sqrt{31}}}$$

Answer 63PA.

Write each number as a decimal.

$$\frac{\sqrt{2}}{2} = 0.7071...$$

$$\frac{1}{2} = 0.5$$

Therefore,

$$\boxed{\frac{\sqrt{2}}{2} > \frac{1}{2}}$$

Answer 64PA.

Write each number as a decimal.

$$\sqrt{0.42} = 0.6480...$$
$$0.\overline{63} = 0.6363...$$
$$\frac{\sqrt{4}}{3} = 0.6666...$$

In the given numbers, $0.\overline{63}$ is the least value and $\frac{\sqrt{4}}{3}$ is the greatest value. The numbers in order from least to greatest is shown below.

$$\boxed{0.\overline{63},\ \sqrt{0.42},\ \frac{\sqrt{4}}{3}}$$

Answer 65PA.

Write each number as a decimal.

$$\sqrt{0.06} = 0.2449...$$
$$0.\overline{24} = 0.2424...$$
$$\frac{\sqrt{9}}{12} = 0.25$$

In the given numbers, $0.\overline{24}$ is the least value and $\frac{\sqrt{9}}{12}$ is the greatest value. The numbers in order from least to greatest is shown below.

$$\boxed{0.\overline{24},\ \sqrt{0.06},\ \frac{\sqrt{9}}{12}}$$

Answer 66PA.

Write each number as a decimal.

$$-1.\overline{46} = -1.4646...$$
$$0.2 = 0.2$$
$$\sqrt{2} = 1.4142...$$
$$-\frac{1}{6} = -0.1666...$$

In the given numbers, $-1.\overline{46}$ is the least value and $\sqrt{2}$ is the greatest value. The numbers in order from least to greatest is shown below.

$$\boxed{-1.\overline{46},\ -\frac{1}{6},\ 0.2,\ \sqrt{2}}$$

Answer 67PA.

Write each number as a decimal.

$$-4.\overline{83} = -4.8383...$$
$$0.4 = 0.4$$
$$\sqrt{8} = 2.8284...$$
$$-\frac{3}{8} = -0.375$$

In the given numbers, $-4.\overline{83}$ is the least value and $\sqrt{8}$ is the greatest value. The numbers in order from least to greatest is shown below.

$$\boxed{-4.\overline{83},\ -\frac{3}{8},\ 0.4,\ \sqrt{8}}$$

Answer 68PA.

Write each number as a decimal.

$$-\sqrt{65} = -8.0622...$$
$$-6\frac{2}{5} = -6.4$$
$$-\sqrt{27} = -5.1961...$$

In the given numbers, $-\sqrt{65}$ is the least value and $-\sqrt{27}$ is the greatest value. The numbers in order from least to greatest is shown below.

$$\boxed{-\sqrt{65},\ -6\frac{2}{5},\ -\sqrt{27}}$$

Answer 69PA.

Write each number as a decimal.

$$\sqrt{122} = 11.0453...$$
$$7\frac{4}{9} = 7.4444...$$
$$\sqrt{200} = 14.1421...$$

In the given numbers, $7\frac{4}{9}$ is the least value and $\sqrt{200}$ is the greatest value. The numbers in order from least to greatest is shown below.

$$\boxed{7\frac{4}{9},\ \sqrt{122},\ \sqrt{200}}$$

Answer 70PA.

The formula to determine the distance *d* in miles that an object can be seen on a clear day on the surface of a body of water is $d = 1.4\sqrt{h}$, where *h* is the height in feet of the viewer's eyes above the surface of the water. If the plane flies at an altitude of $h = 1500$ feet, the tourists can see about 54.2 miles by using calculations shown below.

$$\begin{aligned} d &= 1.4\sqrt{h} \\ &= 1.4\sqrt{1500} \\ &= 1.4 \times 38.7 \\ &= \boxed{54.2 \text{ miles}} \end{aligned}$$

Answer 71PA.

The formula to determine the distance *d* in miles that an object can be seen on a clear day on the surface of a body of water is $d = 1.4\sqrt{h}$, where *h* is the height in feet of the viewer's eyes above the surface of the water. If Marissa is 135 feet above the ocean and Dillan is 85 feet above the ocean, Marissa can see about 16.27 miles and Dillan can see about 12.91 miles by using calculations shown below.

Marissa	Dillan
$d = 1.4\sqrt{h}$ $= 1.4\sqrt{135}$ $= 1.4 \times 11.62$ $= 16.27 \text{ miles}$	$d = 1.4\sqrt{h}$ $= 1.4\sqrt{85}$ $= 1.4 \times 9.22$ $= 12.91 \text{ miles}$

Marissa can see $16.27 - 12.91 = 3.36$ or about $\boxed{3.4 \text{ miles}}$ farther than Dillan.

Answer 72PA.

The formula to determine the distance *d* in miles that an object can be seen on a clear day on the surface of a body of water is $d = 1.4\sqrt{h}$, where *h* is the height in feet of the viewer's eyes above the surface of the water. If lighthouse keeper stands 120 feet above the ocean, he can see only 15.3 miles by using calculations shown below.

$$\begin{aligned} d &= 1.4\sqrt{h} \\ &= 1.4\sqrt{120} \\ &= 1.4 \times 10.95 \\ &= 15.3 \text{ miles} \end{aligned}$$

Lighthouse keeper cannot see a boat that is 17 miles from the light house because the distance that an object can be seen on a clear day on the surface of a body of water from lighthouse stands 120 feet above the ocean surface is only 15.3 miles which is less than 17 miles.

Answer 73PA.

All statements can be true only when $q > r$ and *q* and *r* are positive. When $q > r$, then $q^2 > r^2$, $\frac{1}{q} < \frac{1}{r}$. For $\sqrt{q} > \sqrt{r}$, $\frac{1}{\sqrt{q}} < \frac{1}{\sqrt{r}}$, *q* and *r* must be positive because the value of $\sqrt{q}$ and $\sqrt{r}$ can be evaluated only when *q* and *r* are positive.

Answer 74PA.

If the side length of the square is *l*, the area of the square will be l^2 and the perimeter of the square will be $4l$. In the table, areas are given. From area, the side length of the square can be calculated by using formula $\sqrt{area}$.

Squares		
Area (unit^2)	Side length $l = \sqrt{area}$	Perimeter $4l$
1	$\sqrt{1} = 1$	$4(1) = 4$
4	$\sqrt{4} = 2$	$4(2) = 8$
9	$\sqrt{9} = 3$	$4(3) = 12$
16	$\sqrt{16} = 4$	$4(4) = 16$
25	$\sqrt{25} = 5$	$4(5) = 20$

Answer 75PA.

From area of the square, the side length of a square can be calculated by using formula $\sqrt{area}$. If the area of the square is a, the length of the side, *l*, is shown below.

$$l = \sqrt{a}$$

Answer 76PA.

From area of the square, the side length of a square can be calculated by using formula $\sqrt{area}$. If the area of the square is a, the length of the side, *l*, is shown below.

$$l = \sqrt{a}$$

The perimeter of the square is four times the side length.

$$\begin{aligned} perimeter &= 4l \\ &= \boxed{4\sqrt{a}} \end{aligned}$$

Answer 77PA.

The surface area of the human body can be calculated by using the formula shown below.

$$\text{Surface Area} = \sqrt{\frac{\text{height} \times \text{weight}}{3600}}$$

To find the surface area, first multiply height and weight. Divide the product by 3600. Take square root of the result to find the surface area. Some situations like when body is exposed in radiations or chemicals, you need to calculate the surface area of the human body. A one real-world situation involving square roots is when the area of the square is known and you want to find the length of the side.

$$side = \sqrt{area}$$

This formula needs to take square root.

Answer 78PA.

Write the number as a decimal.

$$-\sqrt{7} = -2.6457...$$

On the number line, $-\sqrt{7}$ will fall between -3 and *S*. So, *S* is closest to $-\sqrt{7}$.

Hence, the correct option is $\boxed{B}$.

Answer 79PA.

Write each number as a decimal.

$$\frac{6}{3} = 2.0$$

$$\frac{3}{6} = 0.5$$

So, $\frac{6}{3} > \frac{3}{6}$ or $-\frac{3}{6} > -\frac{6}{3}$.

Hence, the correct option is $\boxed{B}$.

Answer 80MYS.

The odds of an event occurring is the ratio that compares the number of ways an event can occur to the number of ways it cannot occur. There are two red four's, and there are $52-2$ or 50 cards that are not red four. Therefore, odds of red 4 is shown below.

$$\text{odds of red } 4 = \frac{2}{50} \text{ or } \boxed{1:25}$$

Answer 81MYS.

The odds of an event occurring is the ratio that compares the number of ways an event can occur to the number of ways it cannot occur. There are 20 even number cards (5 of each suit), and there are $52-20$ or 32 cards that are not even. Therefore, odds of even number is shown below.

$$\text{odds of even number} = \frac{20}{32} \text{ or } \boxed{5:8}$$

Answer 82MYS.

The odds against an event occurring is the ratio that compares the number of ways an event cannot occur to the number of ways it can occur. There are 12 face cards (3 of each suit), and there are $52-12$ or 40 cards that are not face cards. Therefore, odds against a face card is shown below.

$$\text{odds against a face card} = \frac{40}{12} \text{ or } \boxed{10:3}$$

Answer 83MYS.

The odds against an event occurring is the ratio that compares the number of ways an event cannot occur to the number of ways it can occur. There are 4 ace cards (1 of each suit), and there are $52-4$ or 48 cards that are not aces. Therefore, odds against an ace is shown below.

$$\text{odds against an ace} = \frac{48}{4} \text{ or } \boxed{12:1}$$

Answer 84MYS.

First arrange the data in ascending order.

1	1	1	2	3	4	4	4	4	5
5	6	7	7	8	8	8	9	9	10
10	10	11	14	14	23	23	25	28	32
33	34	36	39						

To find the mean of the data, add the data and divide by number of terms.

$$mean = \frac{1+1+...+36+39}{34}$$
$$= \frac{438}{34}$$
$$= 12.88$$

The median is the mean of two middle values of sorted data.

$$median = \frac{\left(\frac{n}{2}\right)^{th} value + \left(\frac{n}{2}+1\right)^{th} value}{2}$$
$$= \frac{\left(\frac{34}{2}\right)^{th} value + \left(\frac{34}{2}+1\right)^{th} value}{2}$$
$$= \frac{17^{th} value + 18^{th} value}{2}$$

Answer 85MYS.

To simplify the expression $4(-7)-3(11)$, multiply 4 and 7 and also multiply 3 and 11.

$$4(-7)-3(11) = -28-33$$

To add rational numbers -28 and -33 having same sign, add their absolute values. The sum has the same sign as the addends. Here both values have negative sign.

$$-28-33 = \boxed{-61}$$

Answer 86MYS.

To simplify the expression $3(-4)+2(-7)$, multiply 3 and 4 and also multiply 2 and 7.

$$3(-4)+2(-7)=-12-14$$

To add rational numbers -12 and -14 having same sign, add their absolute values. The sum has the same sign as the addends. Here both values have negative sign.

$$-12-14=\boxed{-26}$$

Answer 87MYS.

To simplify the expression $1.2(4x-5y)-0.2(-1.5x+8y)$, multiply 1.2 with each expression of $(4x-5y)$ and also multiply -0.2 with each expression of $(-1.5x+8y)$.

$$\begin{aligned}1.2(4x-5y)-0.2(-1.5x+8y) &= 4.8x-6.0y+0.3x-1.6y \\ &= 4.8x+0.3x-6.0y-1.6y\end{aligned}$$

To add rational numbers having same sign, add their absolute values. The sum has the same sign as the addends.

$$4.8x+0.3x-6.0y-1.6y=\boxed{5.1x-7.6y}$$

Answer 88MYS.

To simplify the expression $-4x(y-2z)+x(6z-3y)$, multiply $-4x$ with each expression of $(y-2z)$ and also multiply x with each expression of $(6z-3y)$.

$$\begin{aligned}-4x(y-2z)+x(6z-3y) &= -4xy+8xz+6xz-3xy \\ &= -4xy-3xy+8xz+6xz\end{aligned}$$

To add rational numbers having same sign, add their absolute values. The sum has the same sign as the addends.

$$-4xy-3xy+8xz+6xz=\boxed{-7xy+14xz}$$