

Praxis Problems to Master

ANSWER KEY

1) Given $a + 3b + 2c = 47$ and $3a + b + 2c = 21$, what is the value of $a + b + c$?

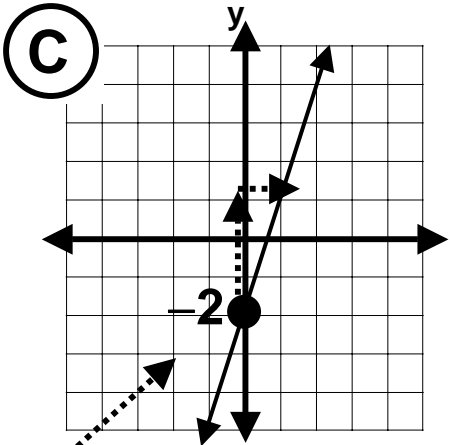
The trick here is to notice that the sum of each of the letters will be 4.

$$\begin{array}{r} 1a + 3b + 2c = 47 \\ + 3a + 1b + 2c = 21 \\ \hline \end{array}$$

$\frac{4a}{4} + \frac{4b}{4} + \frac{4c}{4} = \frac{68}{4}$ Then all you need to do is divide everything by 4 to get:

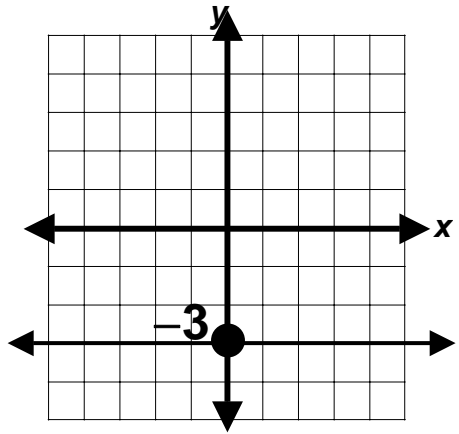
$a + b + c = 17$ Answer: **17**

When an equation is in the form: $Y = mx + b$, the number on the end (b) is the point where the line crosses the y-axis. In this case it crosses the y-axis at -2 . This was the only line that did so.
 (The number in front of the x is the slope (m). A positive slope rises to the right. A negative slope rises to the left. A slope of 3 means $3/1$ which means it rises up one and runs 1 to the right. See dotted lines)



2) Which of the graphs above represents the equation, $y = 3x - 2$?

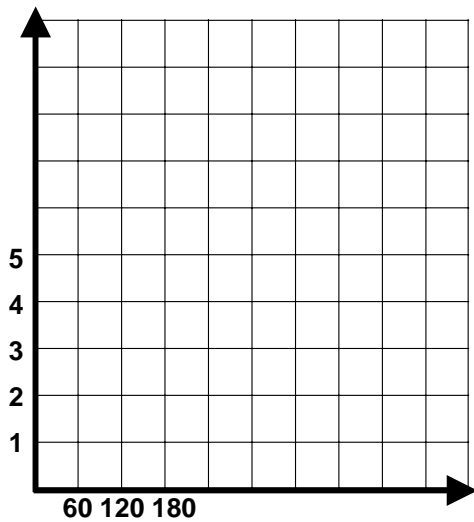
3) In the xy-plane below, what is the equation of the line shown?



A horizontal line will have the equation: $y =$ the number where it crosses the y-axis. In this example, the equation is $y = -3$.

(A vertical line will have the equation: $x =$ the number where it crosses the x-axis.)

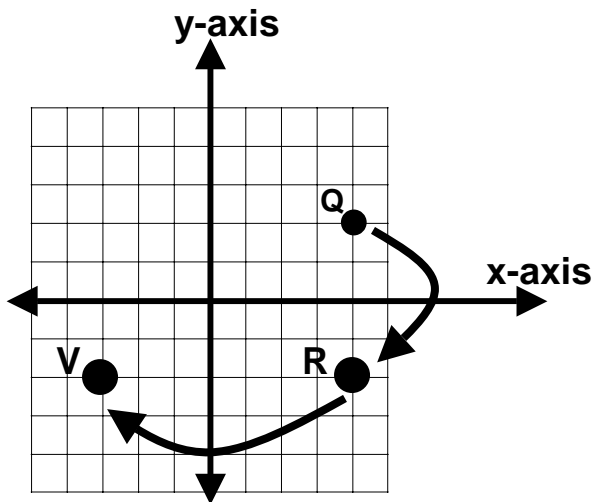
D) $y = -3$



1 hour = 60 minutes

- 4) In the coordinate plane above, if y represents the number of hours, then x represents the equivalent number of _____?

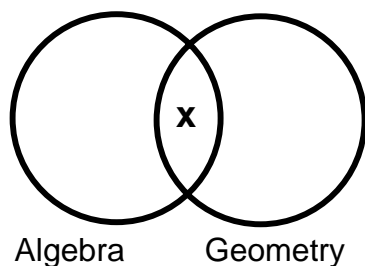
E) Minutes



When Q is “reflected about” or flipped over the x -axis, it will land at the point $R(4,-2)$. Then when the point R is flipped over the y -axis, it will land at the point $V(-4,-2)$.

- 5) Given the point Q , in the xy -plane above, is reflected about the x -axis to the point R (not shown). Then point R is then reflected about the y -axis to the point V (not shown). What are the coordinates of point V ?

C) $(-4,-2)$



$20 + 25 = 45$ but there are only 40 students so there must be an "overlap" of 5 students who are taking both Algebra and Geometry.

Answer: **5**

- 6) If 40 students are questioned and 20 say they are taking Algebra, while 25 say they are taking Geometry, what value does x represent in the diagram above?

- 7) $9\frac{2}{5} + 2\frac{7}{10} + 4\frac{9}{100}$
is equivalent to which of the following?

E) $9.4 + 2.7 + 4.09$

$$\frac{2 \cdot 2}{5 \cdot 2} = \frac{4}{10} \text{ or } .4 \quad \text{so } 9\frac{2}{5} = 9.4$$

$$\frac{7}{10} = .7 \quad \text{so } 2\frac{7}{10} = 2.7$$

$$\frac{9}{100} = .09 \quad \text{so } 4\frac{9}{100} = 4.09$$

- 8) Carl is baking chocolate chip cookies for his wife. If he uses 1 cup of flour and $\frac{2}{3}$ cup of butter for the first batch and then uses $1\frac{2}{3}$ cups of butter for the second batch, how much flour should he use in the second batch?

$$\frac{\text{flour}_1}{\text{butter}_1} = \frac{\text{flour}_2}{\text{butter}_2} \quad \frac{1}{\frac{2}{3}} = \frac{x}{1\frac{2}{3}} \quad \text{cross - multiply}$$

$$\frac{2}{3}x = 1\frac{2}{3} \quad \text{change } 1\frac{2}{3} \text{ to } \frac{5}{3}$$

$$\frac{2}{3}x = \frac{5}{3} \quad \text{multiply both sides by } \frac{3}{2}$$

$$\frac{3}{2}\left(\frac{2}{3}x\right) = \left(\frac{5}{3}\right) \cdot \frac{3}{2}$$

$$x = \frac{5}{2} \text{ or } 2\frac{1}{2} \text{ cups of flour}$$

- 9) Which of the following numbers is the smallest?

C) -2.661

Find the number which is the **LARGEST** without the negative sign. It then becomes the **SMALLEST** with the negative sign.

- 10) Krista invited 107 people to her Sweet 16 party. The tables at the hotel seat 12. If 8 tables were full and 1 table had 3 people at it, how many people did not attend?

8 "full" tables = 8×12 people = 96 people
1 table had 3 people
 $96 + 3 = 99$ people at the party.
 107 invited – 99 attending = **8 people did not attend.**

- 11) In a school, 40 are taking Spanish and 30 are taking French. Ten students are taking both Spanish and French and 15 students are taking neither. How many students are in the school?

$40 + 30 = 70$ students taking Spanish & French but since 10 are taking both, we have to subtract them so they won't be counted twice. $70 - 10 = 60$ students. Since 15 students are taking neither language, add 15 to 60 to get a total of **75 students.**

- 12) Sheryl bought 15 apples which weighed a total of 7.5 pounds. What was the average weight of each apple in ounces? (*16 ounces = 1 pound*)

15 apples divided by $7.5 = .5$ or half of a pound
 $.5(16) = 8$ ounces

- 13) Joe's Used Car dealership sold five cars for \$25,189, \$17,035, \$28,500, \$32,145, and \$15,070. What is the median price of the cars sold?

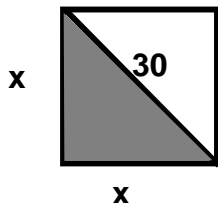
First put the numbers in order: 15070 17035 25189 28500 32145
The median is then the middle number = **\$25189**

- 14) If n is a multiple of 24, then it must be a multiple of all except:

All of the numbers go into 24 evenly except 10.

E) 10

- 15) The diagonal of a square is 30. What is the length of a side?



You can use the Pythagorean Theorem (for right triangles such as the shaded triangle.)

$$a^2 + b^2 = c^2$$

$$x^2 + x^2 = 30^2$$

$$2x^2 = 900$$

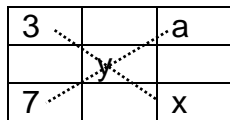
$$x^2 = 450$$

$$x = \sqrt{450} = \sqrt{225} \cdot \sqrt{2} = 15\sqrt{2}$$

An easier way is to remember that a side of a square is always $\frac{1}{2}$ the diagonal times the square root of 2.

Given the side, the diagonal is equal to the side times the square root of 2.

16)



If the sum of the terms in each diagonal is equal, what is the value of $x - a$?

$$3 + y + x = a + y + 7$$

Subtracting y from both sides will leave:

$$3 + x = a + 7$$

Subtracting 3 from both sides will leave:

$$x = a + 4$$

Finally subtract a from both sides to get the answer

$$x - a = 4$$

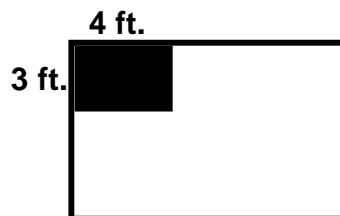
17) The first number in a sequence is 4. Each term after this is found by squaring the preceding term and subtracting 6. What is the fourth term in the sequence?

$$4,$$

$$4^2 - 6 = 16 - 6 = 10$$

$$10^2 - 6 = 100 - 6 = 94$$

$$94^2 - 6 = 8836 - 6 = 8830$$



$$12 \times 18 = 216$$

$$3 \times 4 = 12$$

$$216 - 12 = 204$$

18) The shaded area represents a closet in a 12 ft. x 18 ft. room. How much floor space is remaining?

19) If a bike rental company charges \$20 plus \$.75/mile for a 12-hour adventure, which of the following represents the cost of renting a bike for 12 hours and traveling x miles?

A) $20 + .75x$

The 12 hour info is just a distraction. It is not used in the problem at all.

$$\text{\$20 plus } .75/\text{mile} = 20 + .75x$$

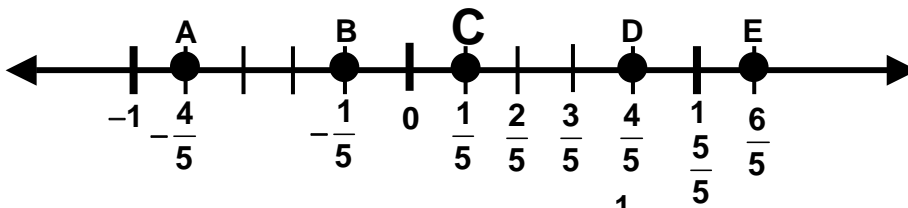
20) If a 240 minute documentary is edited down to 180 minutes. What is the percent decrease in the length of the movie?

$$\frac{\text{difference}}{\text{original}} = \frac{\%}{100} \quad 240 - 180 = \text{a difference of } 60.$$

The original is 240 since it asked the % DEcrease.

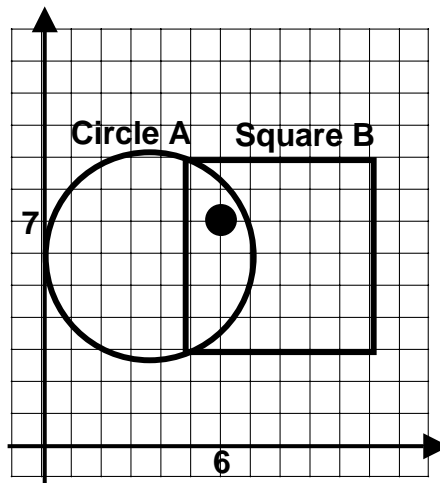
This tells us the original was the larger number.

$$\frac{60}{240} = \frac{x}{100} \quad \text{reduce: } \frac{1}{4} = \frac{x}{100} \quad 4x = 100 \quad x = 25\%$$



C

21) Which of the coordinates above represents $\frac{1}{5}$?



22) Which of the following points is in circle A and square B?

B) (6,7)

23) Solve for x: $7 > x - 8$

B) $x < 15$

$$\begin{array}{r}
 7 > x - 8 \\
 +8 \quad +8 \\
 \hline
 15 > x \\
 \text{So..... } x < 15
 \end{array}$$

24) If q is triple the value of m , what can you conclude about the quotient $\frac{q}{3m}$?

B) It is always equal to 1

25) Given $x = 3$ and $y = -4$,
 what is the value of $\frac{-3(2x - y)}{y - x}$?

$$\frac{-3[2(3) - (-4)]}{-4 - 3} = \frac{-3(6 + 4)}{-7} = \frac{-3(10)}{-7} = \frac{-30}{-7} = \frac{30}{7}$$

26) In a club of 90 students, there are 16 more boys than girls. How many boys and how many girls are in the club?

Let's say $G =$ number of girls
 and $G + 16 =$ number of boys
 $G + G + 16 = 90$
 $2G + 16 = 90$
 $2G = 74$
 $G = 37$ So there are **37 girls**
 and $37 + 16 =$ **53 boys**

27) If a machine prints 20 copies in 5 seconds, how many minutes will it take to print 780 copies?

$$\frac{\text{copies}}{\text{seconds}} = \frac{\text{copies}}{\text{seconds}} \quad \frac{20}{5} = \frac{780}{x} \quad 20x = 5(780)$$

$$20x = 3900 \quad x = \frac{3900}{20} = 195 \text{ seconds. Now change}$$

$$\text{to minutes: } \frac{195}{60} = \mathbf{3.25 \text{ minutes}}$$

	TYPES OF CRUST		
TOPPINGS	Thin	Crunchy	Pan
onions	5	11	9
peppers	16	14	5
olives	8	7	5

28) Pizza Palace had a special one afternoon and offered three types of crust with three types of toppings. The chart above shows the number of each type sold. **What percent** of the 80 pizzas have onions or peppers as toppings.

$$5 + 11 + 9 + 16 + 14 + 5 = 60$$

So 60 out of the 80 pizzas have onions or peppers on them.

$$\frac{60}{80} = \frac{6}{8} = \frac{3}{4}$$

$$\frac{3}{4} = \mathbf{75\%}$$