

More Praxis Practice

KEY

1) $\sqrt{58}$ is between:

$$\sqrt{49} = 7 \qquad \sqrt{64} = 8$$

sooooo... $\sqrt{58}$ must be between 7 and 8.

D) 7 & 8

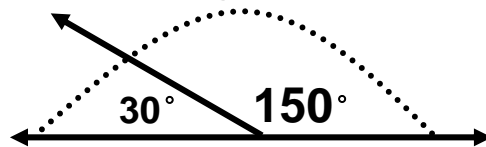
2) $29.7 \times \frac{11}{5.3}$ is closest to:

This is approximately $30 \times 2 = 60$

D) 60

3) Two adjacent angles form a straight line. The acute angle is 30° . What is the other angle?

The angles that form a straight line add up to 180° .



E) 150

4) Given one inch is approximately 2.54 centimeters, 6.4 centimeters would equal how many inches?

A) 2.5

$$\begin{aligned} \frac{1}{2.54} &= \frac{x}{6.4} \\ 2.54x &= 6.4 \\ x &= 2.51 \end{aligned}$$

5) Marcy sold the most boxes of cookies. Beth sold five fewer. Suzy sold ten fewer. Which of the following is true?

E) Beth sold more than Suzy.

Let's pretend Marcy sold 200 boxes. Then Beth sold 195 and Suzy sold 190. You can't tell much from this! You can only conclude that Beth sold more than Suzy.

6) Given $\frac{a}{b} = \frac{c}{d}$, which of the following is not equivalent?

B) $\frac{a}{d} = \frac{b}{c}$

The cross-products are not equal.

If $\frac{a}{b} = \frac{c}{d}$, then $ad = bc$.

If $\frac{a}{d} = \frac{b}{c}$, then $ac = bd$.

7) The average of Paula and Randy's salaries is \$95,200. Paula, Randy, and Simon's average salary is \$101,000. What is Simon's salary?

$$\frac{P + R}{2} = \frac{95,200}{1} \quad \text{cross - multiply}$$

$$P + R = 190,400$$

$$\frac{P + R + S}{3} = \frac{101,000}{1} \quad \text{cross - multiply}$$

$$P + R + S = 303,000$$

$$\underbrace{P + R}_{190,400} + S = 303,000$$

$$190,400 + S = 303,000$$

$$\begin{array}{r} -190,400 \quad -190,400 \\ \hline S = 112,600 \end{array}$$

E) \$112,600

8) A sample of seven-hundred and fifty people represents between 6% and 10% of the population of a town. Which of the following could be the population of the town.

C) 12,000

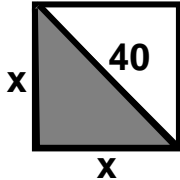
$$\begin{aligned} .06x &= 750 \\ x &= 12,500 \end{aligned}$$

$$\begin{aligned} .10x &= 750 \\ x &= 7,500 \end{aligned}$$

So, the population must be between 7,500 and 12,500.

9) The diagonal of a square is 40. What is the length of a side?

B) $20\sqrt{2}$

$$\begin{aligned}x^2 + x^2 &= 40^2 \\2x^2 &= 1600 \\x^2 &= 800 \\x &= \sqrt{800} = \sqrt{400} \cdot \sqrt{2} = 20\sqrt{2}\end{aligned}$$


The diagram shows a square with side length x and a diagonal of length 40. The diagonal is drawn from the top-left corner to the bottom-right corner, forming a right-angled triangle with the two sides of the square.

10) How many nickels are equivalent to 35 quarters?

A) 175

$$\frac{35(\cancel{25})}{\cancel{5}} = 35(5) = 175$$

11) Darla's house increased 30% in value from 1978 to 2005. If the house cost \$409,500 in 2005, what did it cost in 1978?

B) \$315,000

$$\begin{aligned}\text{An increase of } 30\% &= 130\% \text{ or } 1.30 \\1.30x &= 409500 \\x &= 315000\end{aligned}$$

12) In a group of 385 people, the ratio of children to adults is 2:5. How many of them are children?

B) 110

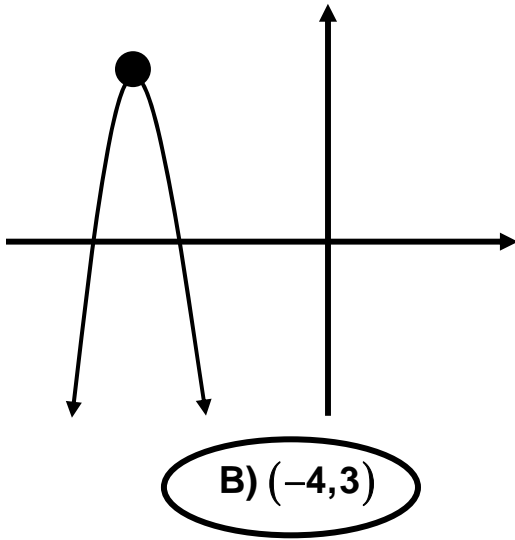
$$\begin{aligned}2x + 5x &= 385 \\7x &= 385 \\x &= 55 \quad \text{BUT... children} = 2x \text{ so } 2(55) = 110\end{aligned}$$

13) The points **(19,4)** and **(37,7)** line on the same line with the point **(x,10)**. Find the value of x:


C) 55

The 2nd coordinate goes up by 3: 4, 7, 10.
The 1st coordinate, or x, goes up by 18:
 $19 + 18 = 37$
 $37 + 18 = \underline{55}$

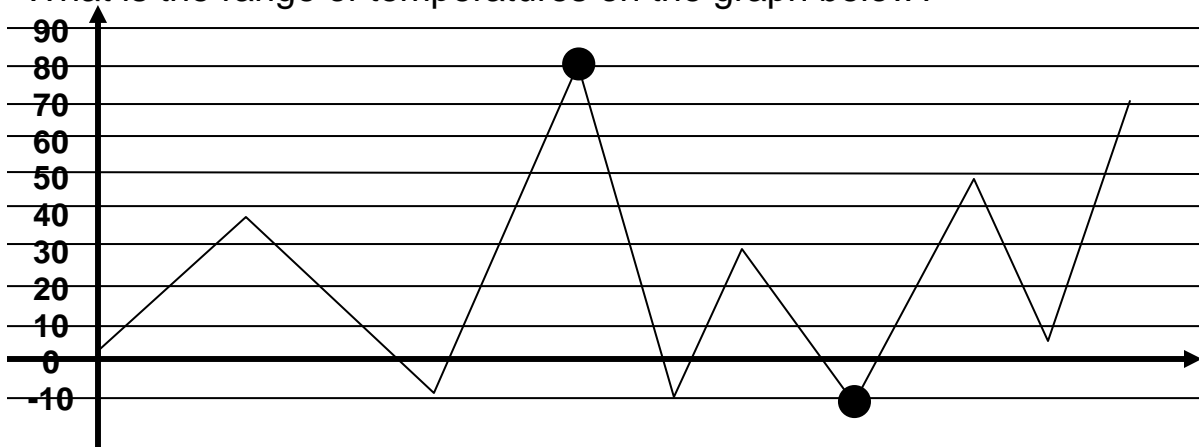
14) Which point could represent the **vertex** of the graph below?



The vertex is the highest point **(-4, 3)** when the graph opens down.
If the graph opened up, the vertex would be the lowest point.



15) What is the range of temperatures on the graph below?



D) 90

The range is the highest minus the lowest:
 $80 - (-10) = \underline{90}$

16) Given the statement:

“Y is equal to the quotient of 4 more than 5 times a number and 8.”

Which of the following shows the reverse of this statement?

A) $x = \frac{8y - 4}{5}$

The quotient of 4 more than 5 times a number and 8 can be written:

$$\frac{y}{1} = \frac{4 + 5x}{8} \quad \text{Next, solve for } x$$

cross – multiply

$$4 + 5x = 8y$$

$$5x = 8y - 4$$

$$x = \frac{8y - 4}{5}$$

$$y + \square > 11$$

$$y > 17$$

17) What is the smallest value for \square that will satisfy both inequalities?

E) - 6

Since $y > 17$, and we want the largest value for the “box”, let’s pick the smallest value for y : $y = 18$.

$$18 + \square > 11 \quad \text{Subtract 18 from both sides.}$$

$$\begin{array}{r} -18 \\ \hline \square > -7 \end{array}$$

The smallest value that is greater than -7 is -6.

18) How could you convert 105 nickels into quarters?

A) $\frac{105}{5}$

$$\frac{105 \text{ nickels times } 5 \text{ cents in a nickel}}{25 \text{ cents to make quarter}} = \frac{105 \cdot 5}{25} = \frac{105}{5}$$

- 19) Given that x and y vary inversely so that $xy = k$.
If $x = 20$ when $y = 2$, find y when $x = 8$.

You don't really need to know what "vary inversely" means. (As one increases, the other decreases...) Just to this: Substitute for x & y to find k . Then use new equation to find y .

$$\begin{array}{ll} xy = k & xy = 40 \\ 20(2) = k & 8y = 40 \\ 40 = k & y = 5 \end{array}$$

- 20) $\sqrt{12 \times 27} = ?$

**You can multiply the numbers together to get 324 and then use the answers to find that 18×18 is 324. Therefore $\sqrt{324} = 18$.
OR...you can break the 12 and the 27 up into perfect squares like this:**

$$\begin{array}{l} \sqrt{12 \times 27} = \sqrt{4 \cdot 3 \times 3 \cdot 9} \text{ Then combine the } 3 \times 3 \text{ to} \\ \text{make another } 9 \text{ so it looks like this:} \\ \sqrt{12 \times 27} = \sqrt{4 \cdot 9 \cdot 9} = 2 \cdot 3 \cdot 3 = 18 \end{array}$$

- 21) Given: $29 = \frac{8 \times \square}{5} + \square$ When the boxes are replaced in order, which of the following numbers results in the correct equation?

Just plug the numbers into the boxes until you find the one combination that works:

$$29 = \frac{8 \times \cancel{15}^3}{\cancel{5}_1} + 5 = 8 \times 3 + 5 = 24 + 5 = 29$$

E) 15, 5

22) Given the following set of instructions:

Step 1: Take a number, n .

Step 2: Multiply it by 4.

Step 3: Add 10

Step 4: Divide by 3

Step 5: Subtract 1.

If the result, after following these five steps is 17, what is n ?

Do the opposite of each step in reverse. Start with step 5 and ADD 1.

5) $17 + 1 = 18$

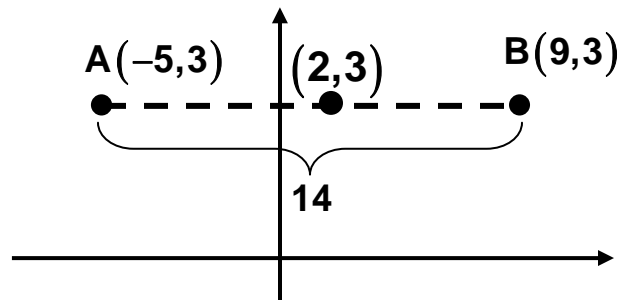
4) $18 \times 3 = 54$

3) $54 - 10 = 44$

2) $44 \div 4 = 11$

1) $n = 11$

23) What point is equidistant between A and B?



The distance from -5 to $0 = 5$ and from 0 to 9 is 9 . So, the distance from -5 to $+9 = 14$. Take $\frac{1}{2}$ of $14 = 7$ and move 7 to the right from -5 OR 7 from the left from 9 and you will be at **$(2, 3)$.**

24) Tawanda wants to average 200 miles driving per day on her five day trip. The first four days she drive 230, 150, 200, and 180 miles. How many miles will she need to drive on the fifth day?

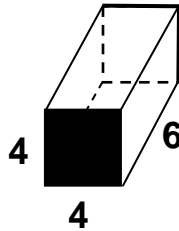
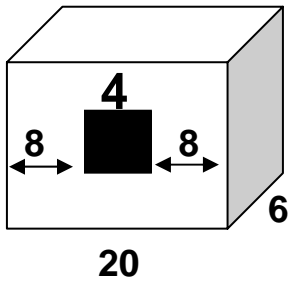
$$\frac{230 + 150 + 200 + 180 + x}{5} = 200$$

$$\frac{760 + x}{5} = \frac{200}{1} \quad \text{cross-multiply}$$

$$760 + x = 1000$$

$$x = \mathbf{240 \text{ miles}}$$

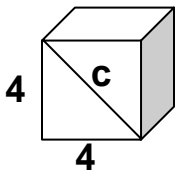
- 25) A rectangular solid is cut out of the solid shown so that it has a square face. What is the volume of the smaller solid?



$20 - 8 - 8 = 4$ so the square front face is 4 by 4.

$$\text{Volume} = L \cdot W \cdot H = 4 \cdot 4 \cdot 6 = \mathbf{96}$$

- 26) If the volume of a cube is 64, find the length of a diagonal of one of the faces of the cube.



Since $\text{Volume} = L \cdot W \cdot H = 64$ and all the sides are the same, we can write: $x \cdot x \cdot x = 64$. By trial & error, we can figure out that x must be 4. ($4 \cdot 4 \cdot 4 = 64$)

Then use the Pythagorean Theorem to get the length of the diagonal:

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

$$4^2 + 4^2 = c^2$$

$$16 + 16 = c^2$$

$$c^2 = 32 = \sqrt{16 \cdot 2} = \mathbf{4\sqrt{2}}$$

- 27) There are k red marbles in a jar, m white marbles, and q orange marbles. What is the probability of picking a white marble?

$$\text{Probability}_{\text{white}} = \frac{\text{number of white}}{\text{total}} = \frac{m}{k + m + q}$$

28) What is the value of $a(b - c) + a(c - b)$?

$$a(b - c) + a(c - b) = ab - ac + ac - ab = \mathbf{0} \quad \text{or} \quad ab - ab - ac + ac = \mathbf{0}$$

29) The numerator of a fraction is 10 less than twice the denominator.
The fraction is equal to $\frac{9}{7}$. What is the denominator?

Call the denominator "d" and the numerator $2d - 10$.

$$\frac{2d - 10}{d} = \frac{9}{7} \quad \text{cross-multiply}$$

$$9d = 7(2d - 10)$$

$$9d = 14d - 70$$

$$\begin{array}{r} -14d \\ -14d \end{array}$$

$$-5d = -70 \quad \text{divide by } -5$$

$$d = \mathbf{14}$$

Check:

If $d = 14$, then numerator =
 $2(14) - 10 = 28 - 10 = 18$

$$\frac{18}{14} = \frac{9}{7}$$

30) A teacher has 7 boxes of cookies with 14 cookies in a box. He gives out 4 cookies to each of his students and has 2 left. How many students does he have?

$$7(14) = 98 \text{ cookies}$$

Let x = the number of students.

$$4x + 2 = 98$$

$$4x = 96$$

$$x = \mathbf{24} \text{ students}$$

31) If S represents all of the multiples of ten between 50 and 150 so that S is greater than 50 but less than 150, what is the median of S ?

60, 70, 80, 90, 100, 110, 120, 130, 140

Median = 100

32) What is the median of this list of numbers?

6, 2, -1, -10, -5, 1, 4

First, put them in ORDER: -10, -5, -1, 1, 2, 4, 6

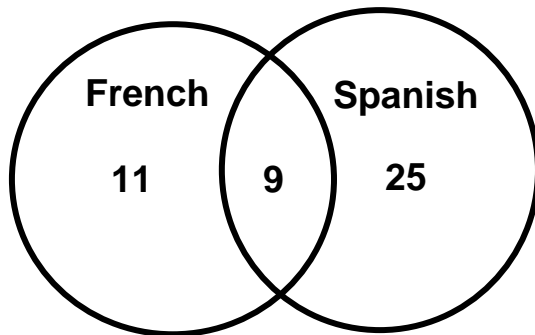
The median is 1.

33) Dawn said that if you multiply $\frac{1}{4}$ by any number, you will get a smaller number. Which of the following disproves her statement?

B) 1

$$\frac{1}{4} \cdot 1 = \frac{1}{4} \text{ which is equal, NOT smaller!}$$

34) A group of 58 students were asked what language they were studying in school. How many students were not studying French or Spanish?



$$11 + 9 + 25 = 45$$

$$58 - 45 = 13$$

students who were not studying French or Spanish

35) In a group of x students, $\frac{3}{5}$ of them are women. Of the woman, $\frac{5}{6}$ of them are college graduates. Which of the following represents the number of women who are college graduates?

The order that you multiply does not matter!

D) All of these

- 36) Take the number n , double it, add 3, multiply the result by 6, and then subtract 7. Which of the following represents these instructions?

Follow the steps:

n

$2n$

$2n + 3$

$6(2n + 3)$

$6(2n + 3) - 7$

C) $6(2n + 3) - 7$

- 37) You tell the bank teller that you want to cash a check for \$2,000. You want the money in \$100 bills and \$10 bills only and you want between 10 and 15 one-hundred dollar bills. The number of ten-dollar bills must be between:

\$2000 – fifteen \$100 bills = \$2000 - \$1500 = \$500

So you would have \$500 left to put in \$10 bills.

$\$500 \div \$10 = \underline{50 \text{ bills}}$

\$2000 – ten \$100 bills = \$2000 - \$1000 = \$1000

So you would have \$1000 left to put in \$10 bills.

$\$1000 \div \$10 = \underline{100 \text{ bills}}$

Answer: Between 50 and 100

- 38) Triné divides her class of y students into x groups of three students each but has 2 students left over. Which represents this?

A) $y = 3x + 2$

The word “divides” is confusing. Since there are 3 students in each group, there are $3x$ students with 2 (+2) left over.

- 39) The ratio of boys to girls in Cedraan's school is 2 to 3. If there are 650 students in the school, how many are girls?

Let $2x$ = number of boys

Let $3x$ = number of girls

$$2x + 3x = 650$$

$$5x = 650$$

$$x = 130 \text{ BUT this is NOT the answer!}$$

$$3x = \text{number of girls} = 3(130) = \mathbf{390 \text{ girls.}}$$

- 40) If n is a multiple of 18 then n must be a multiple of all but which of these?

(C) 4

Multiples of 18 include:

$$1 \times 18 = 18$$

18 is not a multiple of 4.

- 41) Given the formula: $P = 1000(1 + .02t)$. Find t when $P = 2500$.

$$P = 1000(1 + .02t)$$

$$2500 = 1000(1 + 0.02t) \text{ multiply}$$

$$2500 = 1000 + 20t \quad \text{subtract 1000}$$

$$1500 = 20t \quad \text{divide by 20}$$

$$t = \mathbf{75}$$

- 42) In March, my gas station sold unleaded gas at \$2.45/gallon.
In May the price was \$2.89/gallon. How much more gas would \$200
buy in March?

$$\mathbf{\$2.89 - \$2.45 = \$0.44 \text{ cheaper in March.}}$$

$$\mathbf{.44(\$200) = 88 \text{ gallons more}}$$

- 43) $p = 6r^2$
 $r = 3$

Given the above information,
find the value of p.

$$\mathbf{p = 6r^2 \quad \text{and} \quad r = 3}$$

replace r with the number 3

$$\mathbf{p = 6(3)^2 = 6(9) = 54 \text{ (be sure to do } 3^2 \text{ first)}}$$

- 44) How many 4.5 ft pieces of rope can be cut from a rope that
is 30 ft. long?

$$\mathbf{30 \div 4.5 = 6.6}$$

So 6 pieces that are 4.5 feet long
can be cut from the longer rope.
(There will be some left over.)