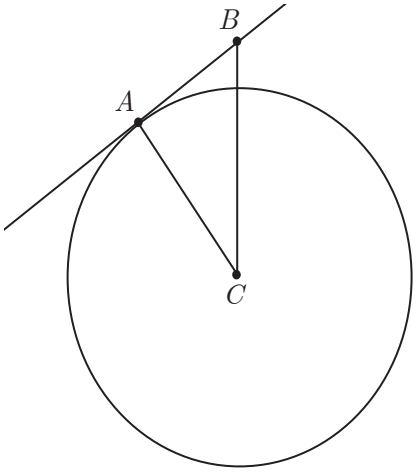
Comprehensive Math Drill

Let's do a drill involving all of the math topics we have covered throughout the book. Remember to check your answers when you finish. You can find the answers in Part V.

1 of 20



Line AB is tangent to the circle C at point A.

The radius of the circle with center C is 5 and $BC = \frac{10\sqrt{3}}{3}$.

Quantity A	**Quantity B**
The length of line segment AB	The length of line segment AC

- ○ Quantity A is greater.
- ○ Quantity B is greater.
- ○ The two quantities are equal.
- ○ The relationship cannot be determined from the information given.

2 of 20

$x \neq 0$

Quantity A	**Quantity B**
$\frac{x}{10}$	$\frac{\frac{x}{5}}{2}$

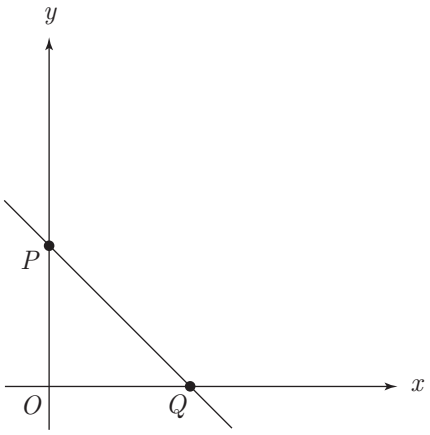
- ○ Quantity A is greater.
- ○ Quantity B is greater.
- ○ The two quantities are equal.
- ○ The relationship cannot be determined from the information given.

3 of 20

Quantity A	**Quantity B**
The standard deviation of the set {1,3,5}	The standard deviation of the set {8,10,12}

- ○ Quantity A is greater.
- ○ Quantity B is greater.
- ○ The two quantities are equal.
- ○ The relationship cannot be determined from the information given.

4 of 20



The line $y = -\frac{5}{6}x + 1$ is graphed on the rectangular coordinate axes.

Quantity A	**Quantity B**
OQ	OP

- ○ Quantity A is greater.
- ○ Quantity B is greater.
- ○ The two quantities are equal.
- ○ The relationship cannot be determined from the information given.

5 of 20

At a dog show, there are 20 judges and 10 dogs in the final round.

Quantity A	**Quantity B**
The number of distinct pairs of judges	The number of possible rankings of dogs from first to third place

- ○ Quantity A is greater.
- ○ Quantity B is greater.
- ○ The two quantities are equal.
- ○ The relationship cannot be determined from the information given.

6 of 20

$k > 0$

$l > 1$

Quantity A	**Quantity B**
$\frac{1}{\frac{1}{k}+\frac{1}{l}}$	$\frac{kl}{\frac{1}{k}+\frac{1}{l}}$

- ○ Quantity A is greater.
- ○ Quantity B is greater.
- ○ The two quantities are equal.
- ○ The relationship cannot be determined from the information given.

7 of 20

Quantity A	**Quantity B**
The greatest odd factor of 78	The greatest prime factor of 78

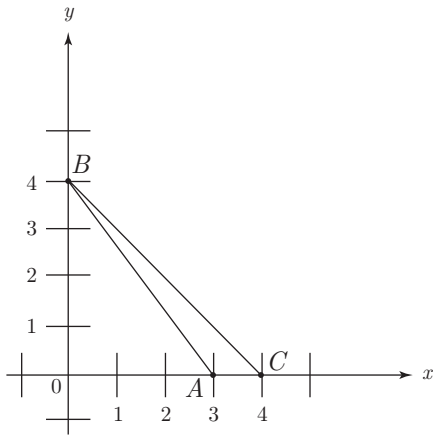
- ○ Quantity A is greater.
- ○ Quantity B is greater.
- ○ The two quantities are equal.
- ○ The relationship cannot be determined from the information given.

8 of 20

Joe has \$200. If he buys a DVD player for \$150, what is the greatest number of DVDs he can buy with the remaining money if DVDs cost \$12 each?

Click on the answer box and type in a number.
Backspace to erase.

9 of 20



What is the area of triangle ABC in the figure above?

- ○ 2
- ○ 4
- ○ $4\sqrt{2}$
- ○ 7
- ○ 8

10 of 20

By which of the following could $10(9^6)$ be divided by to produce an integer result?

Indicate all such values.

- ☐ 90
- ☐ 100
- ☐ 330
- ☐ 540
- ☐ 720

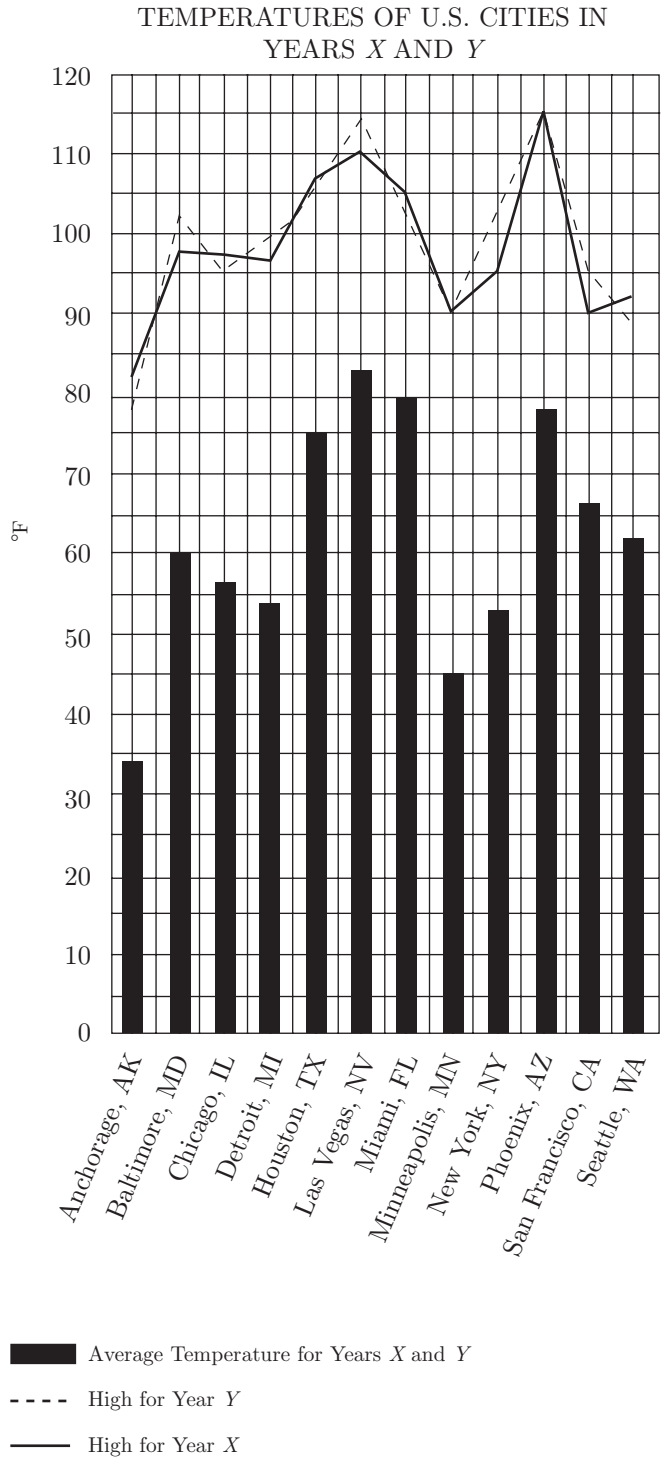
11 of 20

Roberta drove 50 miles in 2 hours. Her rate in miles per hour is equivalent to which of the following proportions?

Indicate all such proportions.

- ☐ 5 to 20
- ☐ 100 to 4
- ☐ 400 to 16
- ☐ 20 to 500
- ☐ 520 to 20

Questions 12 through 14 refer to the following graph.



12 of 20

For how many of the cities shown was the highest temperature in Year Y greater than or equal to the highest temperature in Year X ?

- ◯ 4
- ◯ 5
- ◯ 7
- ◯ 8
- ◯ 12

13 of 20

What is the approximate percent increase from the lowest average (arithmetic mean) temperature for Years X and Y to the highest average temperature?

- ◯ 60%
- ◯ 82%
- ◯ 140%
- ◯ 188%
- ◯ 213%

14 of 20

The average (arithmetic mean) temperature for any city in Years X and Y is the average of the high and low temperatures for those years. What is the average of the low temperatures for Baltimore for Years X and Y ?

- ◯ –9° F
- ◯ 11° F
- ◯ 20° F
- ◯ 44° F
- ◯ It cannot be determined from the information given.

15 of 20

If $|2x - 3| + 2 > 7$, which of the following could be the value of x ?

Indicate <u>all</u> such values.

- ☐ –4
- ☐ –3
- ☐ –2
- ☐ –1
- ☐ 0
- ☐ 1
- ☐ 2
- ☐ 3

16 of 20

If x, y, and z are consecutive odd integers where $x < y < z$ and $x + y + z < z$, then which of the following could be the value of x ?

Indicate <u>all</u> such values.

- ☐ –3
- ☐ –1
- ☐ 0
- ☐ 1
- ☐ 3

17 of 20

If $4^x = 1{,}024$, then $(4^{x+1})(5^{x-1}) =$

- ○ 10^6
- ○ $(5^4)(10^5)$
- ○ $(4^4)(10^5)$
- ○ $(5^4)(10^4)$
- ○ $(4^4)(10^4)$

18 of 20

What is the greatest distance between two vertices of a rectangular solid with a height of 5, a length of 12, and a volume of 780 ?

- ○ 12
- ○ $12\sqrt{2}$
- ○ 13
- ○ $13\sqrt{2}$
- ○ $13\sqrt{3}$

19 of 20

If three boys and three girls sit in a row on a park bench, and no boy can sit on either end of the bench, how many arrangements of the children on the bench are possible?

- ○ 46,656
- ○ 38,880
- ○ 1,256
- ○ 144
- ○ 38

20 of 20

If 16 is the average (arithmetic mean) of p, 24, and q, what is $16(p + q)$?

- ○ 180
- ○ 192
- ○ 384
- ○ 524
- ○ 768