Algebra Drill

$$ac < bc$$

Quantity A	Quantity B
a	b

○ Quantity A is greater.

○ Quantity B is greater.

○ The two quantities are equal.

○ The relationship cannot be determined from the information given.

A video game goes on sale for 15% off the original price and a customer can save an additional 10% on the sale price if she has a coupon. If Bailey buys the video game at the sale price and uses a coupon, what percent of the original price does she pay?

○ 12.5%

○ 25%

○ 75%

○ 76.5%

○ 83.5%

A merchant sold an equal number of 5-cent and 10-cent screws. If the total cost of the screws was $3.00, what was the total number of screws sold?

○ 25

○ 30

○ 40

○ 44

○ 50

At a constant rate of 12,000 rotations per hour, how many rotations does a spinning top make in p minutes?

○ $12{,}000p$

○ $200p$

○ $\dfrac{72{,}000}{p}$

○ $\dfrac{12{,}000}{p}$

○ $\dfrac{200}{p}$

If $3x = 12$, then $8 \div x =$

$$st = -6$$

Quantity A	Quantity B
s	t

○ Quantity A is greater.

○ Quantity B is greater.

○ The two quantities are equal.

○ The relationship cannot be determined from the information given.

A contest winner receives $\frac{1}{4}$ of his winnings in cash and also receives four prizes, each worth $\frac{1}{4}$ of the balance. If total value of the cash and one of the prizes is $35,000, what is the total value of his winnings?

○ $70,000

○ $75,000

○ $80,000

○ $95,000

○ $140,000

Connie has more marbles than Joey, and Joey has fewer marbles than Mark.

Quantity A	Quantity B
The number of marbles Mark has	The number of marbles Connie has

○ Quantity A is greater.

○ Quantity B is greater.

○ The two quantities are equal.

○ The relationship cannot be determined from the information given.

If $2 < r < 8$ and $1 < s < \frac{5}{2}$, which of the following expresses all possible values of rs ?

○ $1 < rs < 5$

○ $2 < rs < 20$

○ $\frac{5}{2} < rs < 8$

○ $\frac{5}{2} < rs < 20$

○ $5 < rs < 10$

Set $A = \{-1,\ 0,\ 1\}$

Set $B = \{-2,\ -1,\ 0,\ 1\}$

If a is a member of Set A and b is a member of Set B, what is the least possible value of $a - b^2$?

○ 2

○ 0

○ −2

○ −5

○ −9

$12m^2 - 8m - 64 =$

○ $4(3m + 8)(m - 2)$

○ $4(3m - 8)(m + 2)$

○ $4(3m - 2)(m + 8)$

○ $4m^2 - 64$

○ $4m - 64$

If $a + b - 2c = 12$, and $3a + 3b + c = 22$, what is the value of c ?

○ −2

○ 0

○ 10

○ 17

○ 34

Kevin decided to consecutively number the T-shirts in his closet. He wrote one number on each of his T-shirts, starting with 1 on the first T-shirt. When he was finished numbering he had written a total of 59 digits.

Quantity A	Quantity B
35	The number of T-shirts in Kevin's closet

○ Quantity A is greater.

○ Quantity B is greater.

○ The two quantities are equal.

○ The relationship cannot be determined from the information given.

If the sum of x distinct, positive integers is less than 75, what is the greatest possible value of x ?

○   8

○   9

○   10

○   11

○   12

An office supply store sells staplers for $5 each, and boxes of staples for $2 each. On Monday, the store sold a total of 22 staplers and boxes of staples combined, for which it collected a total of $74. How many staplers did the store sell?

○   6

○   10

○   11

○   12

○   44

Carmen has 12 collectibles, and t, the value of Carmen's favorite collectible, is between 8 and 9 dollars.

Quantity A	Quantity B
$\dfrac{t}{\text{the number of Carmen's collectibles}}$	0.72

○ Quantity A is greater.

○ Quantity B is greater.

○ The two quantities are equal.

○ The relationship cannot be determined from the information given.

Which of the following is equivalent to $8a + (2ab - 4a)b - 4ab$?

○ $2a(b - 2)^2$

○ $2a(b^2 - 2b + 2)$

○ $4a(b^2 - 2b + b)$

○ $4ab(1 - 2b)$

○ $a^2(2b + 2b^2)b$

Timmie can buy his favorite pens in $10 packs that contain p pens, or he can buy the same pens singly at a cost of $1.12 each.

Quantity A	Quantity B
9	The largest possible value of p if it is cheaper to buy the pens singly rather than in packs

○ Quantity A is greater.

○ Quantity B is greater.

○ The two quantities are equal.

○ The relationship cannot be determined from the information given.

If $x = \dfrac{9y}{4}$ and $x \neq 0$, then $\dfrac{6y}{4x} =$

○ $\dfrac{27}{8}$

○ $\dfrac{9}{4}$

○ $\dfrac{3}{2}$

○ $\dfrac{2}{3}$

○ $\dfrac{1}{9}$

If x is an integer less than or equal to –2 and y is an integer with an absolute value greater than or equal to 5, which of the following statements must be true of xy ?

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

□ xy is an integer

□ xy is negative

□ $xy \leq$ –10

□ $xy \geq 10$

□ $xy = $ –10

□ $|xy| \geq 10$

Six years ago, Jim's age was four times Carol's. Jim is now j years old, and Carol is now c years old.

Quantity A	**Quantity B**
c	$\dfrac{j+16}{4}$

○ Quantity A is greater.

○ Quantity B is greater.

○ The two quantities are equal.

○ The relationship cannot be determined from the information given.

Quantity A	**Quantity B**
$\dfrac{x^4}{x^3}$	x

○ Quantity A is greater.

○ Quantity B is greater.

○ The two quantities are equal.

○ The relationship cannot be determined from the information given.

$$\frac{a+b}{2} = a^2 - b^2 = 32$$

Quantity A	**Quantity B**
$a + b$	$(a - b)^2$

○ Quantity A is greater.

○ Quantity B is greater.

○ The two quantities are equal.

○ The relationship cannot be determined from the information given.

If $a > 12$ and $b < 7$, which of the following must be true?

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

- ☐ $a + b > 12$
- ☐ $a - b > 5$
- ☐ $a + b < 19$
- ☐ $a - b < 12$
- ☐ $ab > 84$
- ☐ $ab < 84$

$$x + y = 14$$
$$y + 4 = 10$$

Quantity A	Quantity B
x	y

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

If $x \neq 0$, which of the following must be true?

- ○ $x < x^2$
- ○ $\dfrac{1}{x} < x$
- ○ $x^2 < x^3$
- ○ $1 - x < x$
- ○ $x < x + 2$

If $x > 0$, $y > 0$, and $z > 0$, then $\dfrac{2}{x} + \dfrac{y + \frac{1}{z}}{2} =$

- ○ $\dfrac{2x}{2x + 2y}$
- ○ $\dfrac{4 + xy + x}{2x}$
- ○ $\dfrac{y + z}{2x}$
- ○ $\dfrac{xyz + 4}{x + y + z}$
- ○ $\dfrac{4z + xyz + x}{2xz}$

$$2x^2 + 3xy - 2y^2 = 0$$

Quantity A	Quantity B
$2x$	y

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

Pat has 4 teapots more than Judi, but 3 teapots fewer than Rudy. If Pat has y teapots, which of the following is an expression for the total number of teapots that Jodi and Rudy have?

- ○ $2y - 7$
- ○ $2y - 1$
- ○ $2y + 9$
- ○ $y + 7$
- ○ $y + 9$

If $x \neq 0$ and one-half of x is equal to four times x^2, then $x =$

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$$q \neq 0$$

Quantity A	**Quantity B**
$\dfrac{\left|q-7\right|}{2}$	$\dfrac{\left|q\right|+\left|-7\right|}{2}$

○ Quantity A is greater.

○ Quantity B is greater.

○ The two quantities are equal.

○ The relationship cannot be determined from the information given.

For all non-zero numbers x and y, if $3x = 5y$, then $\dfrac{4x^2}{25y^2} =$

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Terrence has $\dfrac{2}{3}$ as many cards as Phillip. If Terrence were to win one card from Phillip, he would have $\dfrac{3}{4}$ as many cards as Phillip. If Terrence wins an even number of cards from Phillip, which of the following could be the number of cards that Phillip has left? Indicate <u>all</u> such values.

☐ 24

☐ 20

☐ 19

☐ 18

☐ 17

☐ 14

$$40 < t < 50$$
$$10 < s < 12$$

Quantity A	**Quantity B**
$t - s$	39

○ Quantity A is greater.

○ Quantity B is greater.

○ The two quantities are equal.

○ The relationship cannot be determined from the information given.

If x and n are integers and $x^{(n + 2)} = 16x^2$, what is the least possible value of $16 + x$?

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