

Algebra Quick Quiz

September 30, 2024

1

The expression $w^4 - 36$ is equivalent to

- (1) $(w^2 - 18)(w^2 - 18)$ (3) $(w^2 - 6)(w^2 - 6)$
(2) $(w^2 + 18)(w^2 - 18)$ (4) $(w^2 + 6)(w^2 - 6)$

2

If $f(x) = 4x + 5$, what is the value of $f(-3)$?

- (1) -2 (3) 17
(2) -7 (4) 4

3.

Given: $f(x) = (x - 2)^2 + 4$
 $g(x) = (x - 5)^2 + 4$

When compared to the graph of $f(x)$, the graph of $g(x)$ is

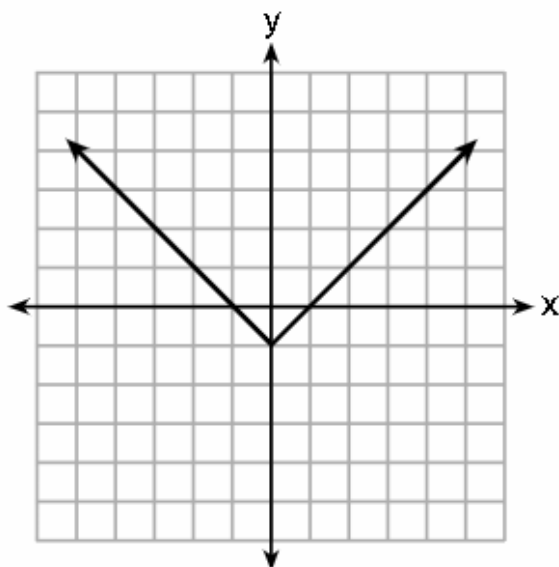
- (1) shifted 3 units to the left (3) shifted 5 units to the left
(2) shifted 3 units to the right (4) shifted 5 units to the right

4.

Which relation is *not* a function?

x	y
-10	-2
-6	2
-2	6
1	9
5	13

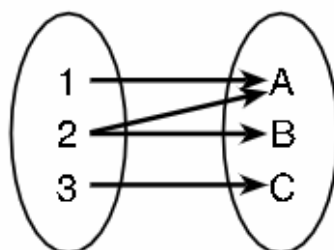
(1)



(3)

$$3x + 2y = 4$$

(2)



(4)

5.

Students were asked to write $6x^5 + 8x - 3x^3 + 7x^7$ in standard form. Shown below are four student responses.

Anne: $7x^7 + 6x^5 - 3x^3 + 8x$

Bob: $-3x^3 + 6x^5 + 7x^7 + 8x$

Carrie: $8x + 7x^7 + 6x^5 - 3x^3$

Dylan: $8x - 3x^3 + 6x^5 + 7x^7$

Which student is correct?

(1) Anne

(3) Carrie

(2) Bob

(4) Dylan

6.

The function f is shown in the table below.

x	$f(x)$
0	1
1	3
2	9
3	27

Which type of function best models the given data?

(1) exponential growth function

(2) exponential decay function

(3) linear function with positive rate of change

(4) linear function with negative rate of change

7.

Which expression results in a rational number?

(1) $\sqrt{2} \cdot \sqrt{18}$

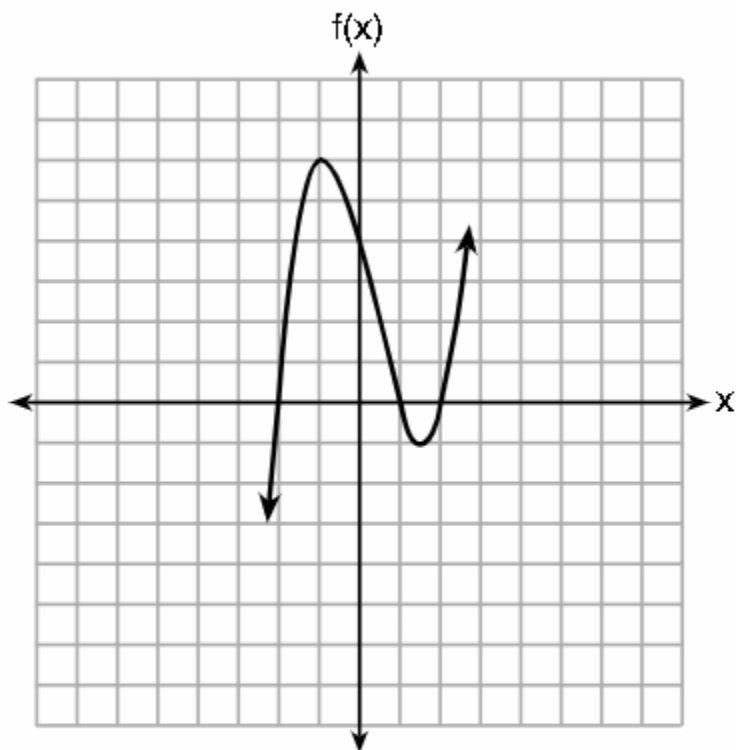
(3) $\sqrt{2} + \sqrt{2}$

(2) $5 \cdot \sqrt{5}$

(4) $3\sqrt{2} + 2\sqrt{3}$

8.

A polynomial function is graphed below.



Which function could represent this graph?

(1) $f(x) = (x + 1)(x^2 + 2)$

(3) $f(x) = (x - 1)(x^2 - 4)$

(2) $f(x) = (x - 1)(x^2 - 2)$

(4) $f(x) = (x + 1)(x^2 + 4)$

9.

When solving $p^2 + 5 = 8p - 7$, Kate wrote $p^2 + 12 = 8p$. The property she used is

- (1) the associative property
- (2) the commutative property
- (3) the distributive property
- (4) the addition property of equality

10.

David wanted to go on an amusement park ride. A sign posted at the entrance read "You must be greater than 42 inches tall and no more than 57 inches tall for this ride." Which inequality would model the height, x , required for this amusement park ride?

- (1) $42 < x \leq 57$
- (2) $42 > x \geq 57$
- (3) $42 < x \text{ or } x \leq 57$
- (4) $42 > x \text{ or } x \geq 57$

BONUS

11.

Which points are on the graph of the equation $-3x + 6y + 5 = -7$?

Select **all** that apply.

- Ⓐ $(-3, 6)$
- Ⓑ $(-2, 0)$
- Ⓒ $(0, -2)$
- Ⓓ $(6, -3)$
- Ⓔ $(8, 2)$

High School Mathematics Assessment Reference Sheet

1 inch = 2.54 centimeters
 1 meter = 39.37 inches
 1 mile = 5280 feet
 1 mile = 1760 yards
 1 mile = 1.609 kilometers

1 kilometer = 0.62 mile
 1 pound = 16 ounces
 1 pound = 0.454 kilograms
 1 kilogram = 2.2 pounds
 1 ton = 2000 pounds

1 cup = 8 fluid ounces
 1 pint = 2 cups
 1 quart = 2 pints
 1 gallon = 4 quarts
 1 gallon = 3.785 liters
 1 liter = 0.264 gallons
 1 liter = 1000 cubic centimeters

Triangle	$A = \frac{1}{2}bh$
Parallelogram	$A = bh$
Circle	$A = \pi r^2$
Circle	$C = \pi d$ or $C = 2\pi r$
General Prisms	$V = Bh$
Cylinder	$V = \pi r^2 h$
Sphere	$V = \frac{4}{3}\pi r^3$
Cone	$V = \frac{1}{3}\pi r^2 h$
Pyramid	$V = \frac{1}{3}Bh$

Quadratic Formula	$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
Arithmetic Sequence	$a_n = a_1 + (n - 1)d$
Geometric Sequence	$a_n = a_1 r^{n-1}$
Geometric Series	$S_n = \frac{a_1 - a_1 r^n}{1 - r}$ where $r \neq 1$
Radians	1 radian = $\frac{180}{\pi}$ degrees
Degrees	1 degree = $\frac{\pi}{180}$ radians