Algebra Quick-Quiz-03172022

Question 1.

An example of an algebraic expression is

(1) $\frac{2x+3}{7} = \frac{13}{x}$

(2) $(2x+1)(x-7)$

(3) $4x - 1 = 4$

(4) $x = 2$

Question 2

Find the roots of the equation $x^2 - x = 6$ algebraically.

Question 3.

Debbie solved the linear equation $3(x + 4) - 2 = 16$ as follows:

[Line 1] $3(x+4) - 2 = 16$

[Line 2] $3(x+4) = 18$

[Line 3] $3x + 4 = 18$

[Line 4] $3x = 14$

[Line 5] $x = 4\frac{2}{3}$

She made an error between lines

(1) 1 and 2

(2) 2 and 3

(3) 3 and 4

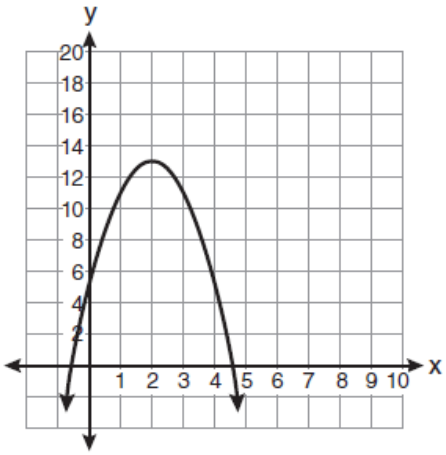
(4) 4 and 5

Question 4.

Guy and Jim work at a furniture store. Guy is paid \$185 per week plus 3% of his total sales in dollars, x, which can be represented by $g(x) = 185 + 0.03x$. Jim is paid \$275 per week plus 2.5% of his total sales in dollars, x, which can be represented by $f(x) = 275 + 0.025x$. Determine the value of x, in dollars, that will make their weekly pay the same.

Question 5.

What is the equation of the axis of symmetry of the parabola shown in the diagram below?



(1) $x = -0.5$

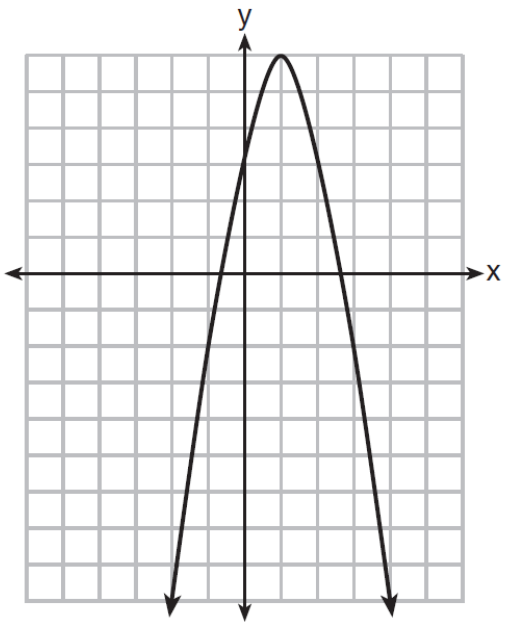
(2) $x = 2$

(3) $x = 4.5$

(4) $x = 13$

Question 6.

Let f be the function represented by the graph below.



Let g be a function such that $g(x) = -\frac{1}{2}x^2 + 4x + 3$.

Determine which function has the larger maximum value. Justify your answer.

Question 7.

Solve the inequality below to determine and state the smallest possible value for x in the solution set.

$$3(x + 3) \leq 5x - 3$$

Question 8.

Which expression is equivalent to $9x^2 - 16$?

(1) $(3x + 4)(3x - 4)$

(2) $(3x - 4)(3x - 4)$

(3) $(3x + 8)(3x - 8)$

(4) $(3x - 8)(3x - 8)$

Question 9.

In a basketball game, Marlene made 16 field goals. Each of the field goals were worth either 2 points or 3 points, and Marlene scored a total of 39 points from field goals.

25. Part A

Let x represent the number of two-point field goals and y represent the number of three-point field goals. Which equations can be used as a system to model the situation?

Select **all** that apply.

Ⓐ $x + y = 16$

Ⓑ $x + y = 39$

Ⓒ $2x + 3y = 16$

Ⓓ $2x + 3y = 39$

Ⓔ $3x + 2y = 16$

Ⓕ $3x + 2y = 39$

Question 9.

How many three-point field goals did Marlene make in the game?

Question 10.

Solve for x: $\frac{3}{5}(x + 2) = x - 4$

(1) 8

(2) 13

(3) 15

(4) 23

Bonus Questions
Question 11.

Use the information provided to answer Part A and Part B for question 32.

Consider the function $f(x) = 2x^2 + 6x - 8$.

32. Part A

What is the vertex form of $f(x)$?

Ⓐ $f(x) = 2(x - 3)^2 - 4$

Ⓑ $f(x) = 2(x + 3)^2 - 4$

Ⓒ $f(x) = 2(x - 1.5)^2 - 12.5$

Ⓓ $f(x) = 2(x + 1.5)^2 - 12.5$

Part B

What is a factored form of $f(x)$?

Ⓐ $f(x) = (2x + 1)(x - 8)$

Ⓑ $f(x) = (2x - 1)(x + 8)$

Ⓒ $f(x) = 2(x + 4)(x - 1)$

Ⓓ $f(x) = 2(x - 4)(x + 1)$