Name:
Class:
Date:

Question #1

Which expression is equivalent to $3xy - 12x - 32 + 8y$?

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

B $(3x + 8)(4 - y)$

C $(3x + 8)(y - 4)$

D $(3x - 8)(y + 4)$

Question #2

What is the factored form of $16m^2 - 24mn^2 + 9n^4$?

A $(4m + 3n)^2$

B $(4m - 3n)^2$

C $(4m + 3n^2)^2$

D $(4m - 3n^2)^2$

Question #3

Directions: Select all the factors that apply.

What are all the factors of this polynomial when factored completely?

$$2x^3 - 2x^2 - 18x + 18$$

2	(x – 3)	(x + 1)	(x + 3)
18	(x – 1)	(x^2 + 3)	(x^2 – 9)

Question #4

Place the expression that *best* completes the sentence.

When factored completely, $27x^3 - 8y^3$ is equivalent to

[ ] .

[ ] .

$(3x - 2y)$ | $(3x + 2y)$ | $(9x - 4y)$ | $(9x + 4y)$ | $(9x^2 + 6xy + 4y^2)$ | $(9x^2 - 6xy + 4y^2)$ | $(3x^2 + 12xy + 2y^2)$ | $(9x^2 - 12xy + 4y^2)$

Question #5

Use the quadratic formula to solve $y^2 + 7y = 6$.

A $y = \frac{-7 \pm \sqrt{73}}{2}$

B $y = -7 \pm \frac{\sqrt{73}}{2}$

C $y = -6 \text{ or } -1$

D $y = -9\ \frac{1}{2} \text{ or } -4\ \frac{1}{2}$

Question #6

Identify ALL roots: $2x^2 - 6x = -7$

A $\frac{i\sqrt{5}}{2}$

B $3 + i\sqrt{5}$

C $\frac{3+i\sqrt{5}}{2}$

D $\frac{-i\sqrt{5}}{2}$

E $3 - i\sqrt{5}$

F $\frac{3-i\sqrt{5}}{2}$

Question #7

Solve $4x^2 + 4x - 3 \leq 0$.

A $(-\infty, \infty)$

B $\left[-\frac{3}{2}, \frac{1}{2}\right]$

C $\left(-\infty, -\frac{3}{2}\right] \cup \left[\frac{1}{2}, \infty\right)$

D $[-3, 2]$

Question #8

Solve $x^2 + x - 20 > 0$**. Use the interval notation.**

[ ] $\cup$ [ ]

$(-\infty, \infty)$ $(-5, 4)$ $(-4, 5)$ $(-\infty, -5)$ $(4, \infty)$ $(-\infty, -20)$ $(20, \infty)$

Question #9

A quadratic function is described below.

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

The quadratic function is paired with each of four linear functions to create four systems of equations.

Determine whether the system, formed by the quadratic function with each of the linear functions, has 0, 1, or 2 real solutions.

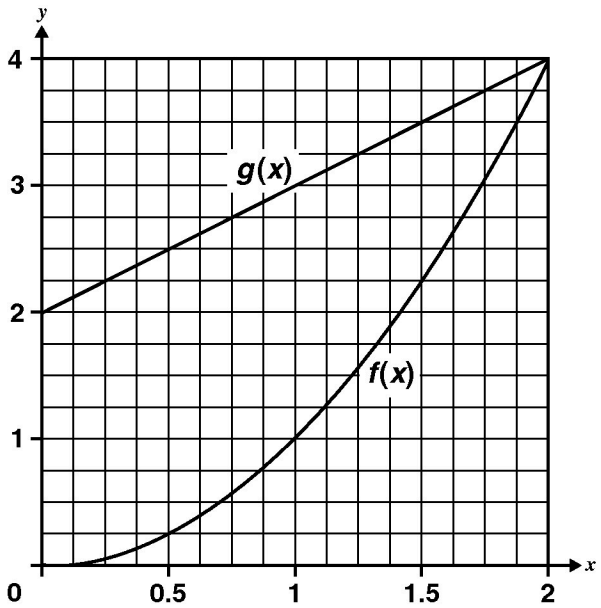
Drag and drop each response into one of the columns below.

0 Solution	1 Solution	2 Solutions

$g(x) = -2$ | $p(x) = -x + 5$ | $j(x) = \frac{21}{5}$ | $s(x) = 8 - 7x$

Question #10

The graphs of $f(x) = x^2$ and $g(x) = x + 2$ are shown below.



Which statement explains the reason $(2, 4)$ is a solution?

A At $(2, 4)$ the functions both have x- and y-values.

B The domain and range of $f(x)$ and $g(x)$ are the same.

C $x^2 = x + 2$ when $x = 2$

D $f(x)$ and $g(x)$ intersect in the first quadrant.

Question #11

Which is a solution to the following system of equations?

$$\begin{cases} y + x^2 - 8 = 0 \\ y + 2x - 9 = 0 \end{cases}$$

A $(0, 8)$

B $(1, 7)$

C $(2, 4)$

D $(-1, 7)$

Question #12

Simplify: $\sqrt{-25} - 3\sqrt{-36}$

A $-13i$

B $23i$

C $5 + 18i$

D $13i$

Question #13

What is the product of $(4 + 3i)$ **and** $(12 - 2i)$**?**

A $54 + 28i$

B $54 - 28i$

C $42 + 28i$

D $42 - 28i$

Question #14

What does $(5 - 2i) - (3 + 4i)$ **simplify to?**

A $2 - 6i$

B $2 + 2i$

C $8 - 6i$

D $8 + 2i$

Question #15

Which of the following is equivalent to $13 - \sqrt{-36}$?

A 7

B $13 - 6i$

C $13 + 36i$

D $19i$