CUNY Elementary Algebra Final Exam

Sample D

June 2016

For the most up-to-date information on this exam, please visit http://www.cuny.edu/testing

You are <u>allowed</u> to use a *scientific calculator* on this exam.

1. Simplify.

$$\mathbf{7\sqrt{24} - 3\sqrt{6}}$$

A) $42\sqrt{2} - 3\sqrt{6}$
B) $25\sqrt{6}$
C) $11\sqrt{6}$
D) $12\sqrt{2}$

2. Simplify completely.

$$\mathbf{\sqrt{3}(\sqrt{3} + \sqrt{5})}$$

A) $3 + \sqrt{5}$
B) $9 + \sqrt{15}$
C) $\sqrt{3} + \sqrt{15}$
D) $3 + \sqrt{15}$

3. Simplify.

$$\mathbf{\frac{\sqrt{10}\sqrt{50}}{\sqrt{5}}}$$

A) $5\sqrt{10}$
B) $\sqrt{10}$
C) 10
D) 1

4. Simplify.

$$\mathbf{\frac{24x^6y^3}{-6x^3y}}$$

A) $-4x^2y^3$

B) $-4x^3y^2$

C) $-4x^3y^3$

D) $-4x^9y^4$

You are <u>allowed</u> to use a *scientific calculator* on this exam.

5. Simplify.

$$\boldsymbol{(6x^3y^6)^2}$$

A) $6x^6y^{12}$

B) $12x^6y^{12}$

C) $36x^5y^8$

D) $36x^6y^{12}$

6. Simplify completely.

$$\boldsymbol{(5x^2-7x+9)-(-2x^2-3x+2)}$$

A) $3x^2-4x+7$
B) $7x^2-4x+7$
C) $7x^2-10x+7$
D) $7x^2-4x+11$

7. Multiply.

$$\boldsymbol{(2x-5)(x^2+4x-6)}$$

A) $2x^3+3x^2-32x+30$
B) $2x^3+8x^2-12x+30$
C) $2x^3+3x^2-12x+30$
D) $2x^3+8x^2-32x+30$

8. Simplify completely.

$$\boldsymbol{\frac{25x^3-35x^2+5x}{-5x}}$$

A) $-5x^2+7x$
B) $25x^3-35x^2$
C) $5x^2-7x+1$
D) $-5x^2+7x-1$

9. Factor *completely*.

$$\boldsymbol{36x^2y-100y^3}$$

A) $4(9x^2y-25y^3)$
B) $4y(3x-5y)(3x+5y)$
C) $4y(3x-5y)(3x-5y)$
D) $4y(9x-25y)(9x+25y)$

You are <u>allowed</u> to use a *scientific calculator* on this exam.

10. Which of the following is a factor of the polynomial?

$$\mathbf{2x^2 - x - 55}$$

A) $x + 11$
B) $x - 5$
C) $2x + 11$
D) $2x - 11$

11. Which of the following is a factor of the polynomial?

$$\mathbf{21ab - 14ax + 15by - 10xy}$$

A) $3b - 2x$
B) $3b + 2x$
C) $7a - 5y$
D) $7a + 2y$

12. If n represents a number, which equation is a correct translation of the sentence?

15 is 12 less than 2 times a number.

A) $15 = 12 - 2n$
B) $15 = 2(n - 12)$
C) $15 = 2n - 12$
D) $15 = 2(12 - n)$

13. Solve for x.

$$\frac{\mathbf{x - 2}}{\mathbf{3}} + \frac{\mathbf{1}}{\mathbf{6}} = \frac{\mathbf{5}}{\mathbf{6}}$$

A) $x = 4$
B) $x = 6$
C) $x = 8$
D) $x = 3$

14. Solve for n.

$$\mathbf{5(8 - n) = 3n - 16}$$

A) $n = 3$
B) $n = -3$
C) $n = -7$
D) $n = 7$

15. What is the value of the y-coordinate of the solution to the system of equations?

$$\boldsymbol{x + 3y = 2}$$
$$\boldsymbol{-3x - 8y = 4}$$

A) $y = -6$
B) $y = 10$
C) $y = 6$
D) $y = -10$

16. Solve for x.

$$\boldsymbol{z = 5x + y}$$

A) $x = \frac{z+y}{5}$

B) $x = \frac{z-y}{5}$

C) $x = \frac{z}{5} - y$

D) $x = 5(z - y)$

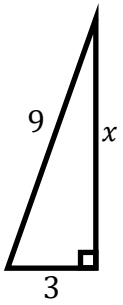
17. Find *all* solutions to the equation.

$$\boldsymbol{4b^2 + 8b = 0}$$

A) Only $b = -2$
B) Only $b = 2$
C) $b = 0$ or $b = 2$
D) $b = 0$ or $b = -2$

You are <u>allowed</u> to use a *scientific calculator* on this exam.

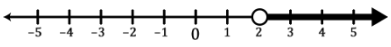
18. What is the value of x in the right triangle?

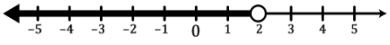


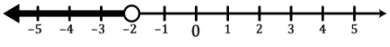
A) $6\sqrt{2}$
B) 6
C) $\sqrt{6}$
D) $3\sqrt{10}$

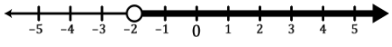
19. Find the graph of the solution to the inequality.

$$\mathbf{3x + 5 < 6x - 1}$$

A) 

B) 

C) 

D) 

20. Given $x = 2$ and $y = -3$, evaluate the expression given below.

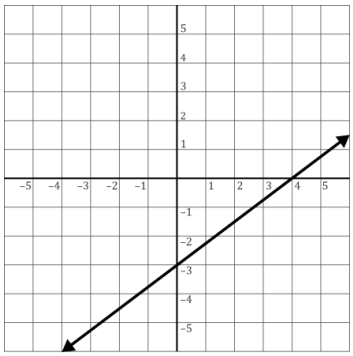
$$\mathbf{2x^2 - 3xy - 2y^2}$$

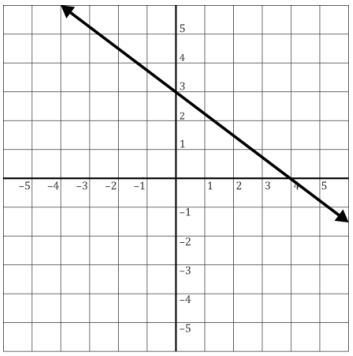
A) -28
B) 28
C) 8
D) 44

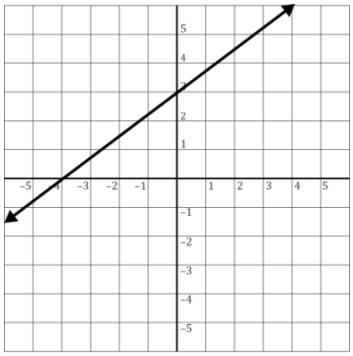
You are <u>allowed</u> to use a *scientific calculator* on this exam.

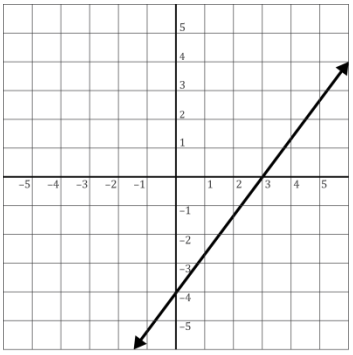
21. Which of the following is the graph of the equation?

$$-3x + 4y = 12$$

A) 

B) 

C) 

D) 

22. Find the equation of the line passing through the points $(-2, 3)$ and $(1, -3)$. Write the equation in slope-intercept form.

A) $y = -2x + 3$
B) $y = 2x + 7$
C) $y = 2x - 5$
D) $y = -2x - 1$

23. Find the equation of the vertical line passing through the point $(-5, -2)$.

A) $y = x - 2$
B) $y = -2$
C) $x = -5$
D) $y = \frac{2}{5}x - 2$

You are <u>allowed</u> to use a *scientific calculator* on this exam.

24. Find the slope and y-intercept for the graph of the equation.

$$\boldsymbol{3x + 4y = 8}$$

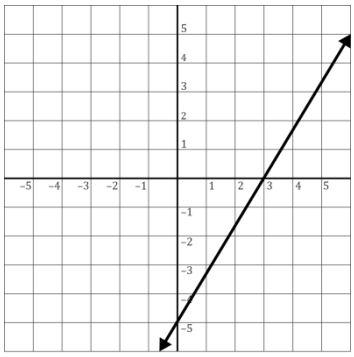
A) Slope$= -\frac{3}{4}$ and y-intercept $= (0, 2)$

B) Slope$= \frac{4}{3}$ and y-intercept $= (0, 8)$

C) Slope$= \frac{3}{4}$ and y-intercept $= (0, 2)$

D) Slope$= -\frac{4}{3}$ and y-intercept $= (0, 8)$

25. What is the slope of the line graphed below?



A) $-\frac{5}{3}$

B) $-\frac{3}{5}$

C) $\frac{3}{5}$

D) $\frac{5}{3}$