



CUNY Elementary Algebra Final Exam

Sample C
June 2016

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<http://www.cuny.edu/testing>

You are allowed to use a *scientific calculator* on this exam.

1. Simplify.

$$\sqrt{40} + \sqrt{250}$$

- A) $10\sqrt{2} + 10\sqrt{5}$
- B) $29\sqrt{10}$
- C) $\sqrt{290}$
- D) $7\sqrt{10}$

2. Simplify completely.

$$\sqrt{2}(\sqrt{2} + \sqrt{7})$$

- A) $2 + \sqrt{14}$
- B) $4 + \sqrt{14}$
- C) $\sqrt{2} + \sqrt{14}$
- D) $2 + \sqrt{7}$

3. Simplify.

$$\frac{\sqrt{6}\sqrt{30}}{\sqrt{5}}$$

- A) $5\sqrt{6}$
- B) $\sqrt{6}$
- C) 6
- D) 1

4. Simplify.

$$(3x^2y)(-4xy^3)$$

- A) $12x^3y^4$
- B) $-12x^3y^4$
- C) $-12x^2y^3$
- D) $12x^2y^3$

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5. Simplify.

$$x^{-6}x^2$$

- A) $\frac{1}{x^3}$
- B) $\frac{1}{x^4}$
- C) $-x^4$
- D) x^4

6. Simplify completely.

$$(7x^2 - 6x + 2) - (4x^2 - 3x + 5)$$

- A) $3x^2 - 9x - 3$
- B) $11x^2 - 3x - 3$
- C) $3x^2 - 3x - 3$
- D) $3x^2 - 3x + 7$

7. Multiply.

$$(4x - 2)(x^2 - 5x + 3)$$

- A) $4x^3 - 22x^2 + 22x - 6$
- B) $4x^3 - 20x^2 + 22x - 6$
- C) $4x^3 - 22x^2 + 12x - 6$
- D) $4x^3 - 20x^2 + 12x - 6$

8. Simplify completely.

$$\frac{20x^9 - 30x^4 + 10x^3}{-10x^3}$$

- A) $-2x^6 + 3x$
- B) $20x^9 - 30x^4$
- C) $2x^6 - 3x + 1$
- D) $-2x^6 + 3x - 1$

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9. Factor *completely*.

$$8x^2y - 18y^3$$

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

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

$$5x^2 + 13x - 6$$

- A) $x - 3$
- B) $5x + 2$
- C) $5x - 3$
- D) $x + 3$

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

$$15cw - 20cz - 6dw + 8dz$$

- A) $5c + 2d$
- B) $5c + 4d$
- C) $3w - 4z$
- D) $3w + 4z$

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

15 is 28 less than 5 times a number.

- A) $15 = 5(28 - y)$
- B) $15 = 5y - 28$
- C) $15 = 5(y - 28)$
- D) $15 = 28 - 5y$

13. Solve for x .

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

- A) $x = \frac{1}{2}$
- B) $x = \frac{3}{2}$
- C) $x = \frac{2}{3}$
- D) $x = 2$

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14. Solve for x .

$$3 - 9x = -7(x + 5)$$

- A) $x = 19$
- B) $x = -16$
- C) $x = 16$
- D) $x = -1$

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

$$\begin{aligned} -2x + y &= 2 \\ 8x - 5y &= 4 \end{aligned}$$

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

16. Solve for x .

$$z = 2x - 5y$$

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

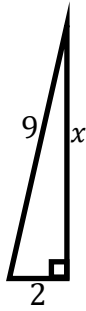
17. Find *all* solutions to the equation.

$$y^2 - 36 = 5y$$

- A) $y = -9$ or $y = 4$
- B) $y = -9$ or $y = -4$
- C) $y = 9$ or $y = 4$
- D) $y = 9$ or $y = -4$

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



- A) 7
B) $\sqrt{77}$
C) $\sqrt{85}$
D) $\sqrt{7}$
19. Find the graph of the solution to the inequality.

$$-2x + 3 \geq 4x - 9$$

- A)
B)
C)
D)

20. Given $a = 2$ and $b = -3$, evaluate the expression given below.

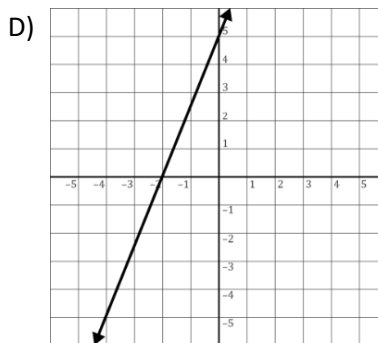
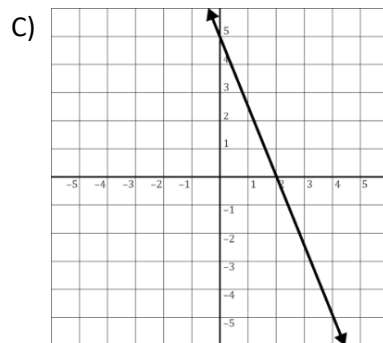
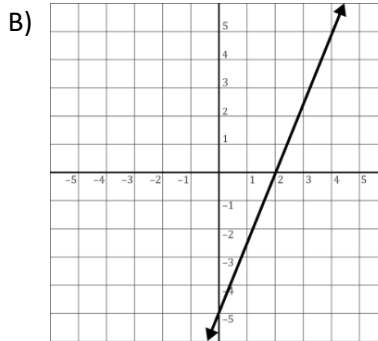
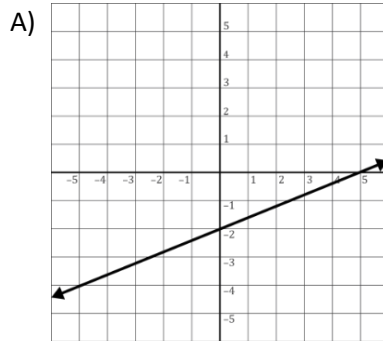
$$a^2b + ab + b^2$$

- A) -9
B) -15
C) 3
D) 27

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

$$-5x + 2y = 10$$



22. Find the equation of the line passing through the points $(1, -2)$ and $(-2, 7)$. Write the equation in slope-intercept form.

- A) $y = 3x + 13$
- B) $y = 3x - 5$
- C) $y = -3x - 2$
- D) $y = -3x + 1$

23. Find the equation of the vertical line passing through the point $(-2, -3)$.

- A) $y = \frac{3}{2}x - 3$
- B) $y = x - 3$
- C) $x = -2$
- D) $y = -3$

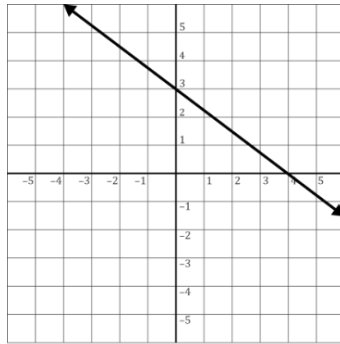
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24. Find the slope and y-intercept for the graph of the equation.

$$8x - 3y = 9$$

- A) Slope = $\frac{3}{8}$ and y-intercept = $(0, 9)$
B) Slope = $-\frac{8}{3}$ and y-intercept = $(0, -3)$
C) Slope = $\frac{8}{3}$ and y-intercept = $(0, -3)$
D) Slope = $-\frac{3}{8}$ and y-intercept = $(0, 9)$

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



- A) $\frac{4}{3}$
B) $\frac{3}{4}$
C) $-\frac{3}{4}$
D) $-\frac{4}{3}$

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Answer Key

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Test Item Number	Correct Answer
1.	D
2.	A
3.	C
4.	B
5.	B
6.	C
7.	A
8.	D
9.	D
10.	D
11.	C
12.	B
13.	A
14.	A
15.	D
16.	D
17.	D
18.	B
19.	D
20.	A
21.	D
22.	D
23.	C
24.	C
25.	C