



CUNY Elementary Algebra Final Exam

Sample E
November 2016

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

1. Simplify.

$$\sqrt{90} + \sqrt{250}$$

- A) $8\sqrt{10}$
- B) $2\sqrt{85}$
- C) $34\sqrt{10}$
- D) $10\sqrt{3} + 10\sqrt{5}$

2. Simplify completely.

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

- A) $25 + \sqrt{15}$
- B) $5 + \sqrt{3}$
- C) $\sqrt{5} + \sqrt{15}$
- D) $5 + \sqrt{15}$

3. Simplify completely.

$$\frac{\sqrt{7}\sqrt{21}}{\sqrt{3}}$$

- A) $3\sqrt{7}$
- B) $\sqrt{7}$
- C) 1
- D) 7

4. Simplify.

$$\frac{-14a^8b^6}{-2a^4b^2}$$

- A) $7a^2b^3$
- B) $7a^{12}b^8$
- C) $7a^4b^4$
- D) $7a^4b^3$

5. Simplify.

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

A) $3x^6y^{12}$

B) $9x^6y^{12}$

C) $27x^5y^7$

D) $27x^6y^{12}$

6. Simplify completely.

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

A) $4x^2 + 3x + 2$

B) $8x^2 + 3x + 2$

C) $8x^2 + 11x + 2$

D) $8x^2 + 3x - 8$

7. Multiply.

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

A) $3x^3 - 23x^2 + 42x - 20$

B) $3x^3 - 18x^2 + 12x - 20$

C) $3x^3 - 23x^2 + 12x - 20$

D) $3x^3 - 18x^2 + 42x - 20$

8. Simplify completely.

$$\frac{30x^9 + 8x^7 - 2x^5}{-2x^5}$$

A) $-15x^4 - 4x^2$

B) $15x^4 + 4x^2 - 1$

C) $30x^9 + 8x^7$

D) $-15x^4 - 4x^2 + 1$

9. Factor *completely*.

$$18x^3 - 200xy^2$$

A) $2x(3x - 10y)(3x + 10y)$

B) $2(9x^3 - 100xy^2)$

C) $2x(9x - 100y)(9x + 100y)$

D) $2x(3x - 10y)(3x - 10y)$

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

$$2x^2 + 11x - 21$$

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

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

$$45cw + 63cz - 20dw - 28dz$$

- A) $9c - 7d$
- B) $9c + 4d$
- C) $5w + 7z$
- D) $5w - 7z$

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

30 subtracted from 7 times a number is 4.

- A) $30 - 7y = 4$
- B) $7(y - 30) = 4$
- C) $7y - 30 = 4$
- D) $7(30 - y) = 4$

13. Solve for x .

$$\frac{x + 4}{2} = \frac{x + 9}{3}$$

- A) $x = 1$
- B) $x = 5$
- C) $x = 6$
- D) $x = 14$

14. Solve for x .

$$18 - 5x = -3(x - 2)$$

- A) $x = 10$
- B) $x = 6$
- C) $x = -12$
- D) $x = 12$

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

$$\begin{aligned}2x + y &= 3 \\ -5x - 2y &= 4\end{aligned}$$

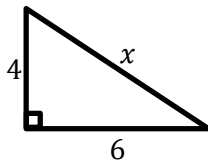
- A) $x = 7$
B) $x = -10$
C) $x = 10$
D) $x = -7$
16. Solve for x .

$$z = 5x - 7y$$

- A) $x = \frac{z+7y}{5}$
B) $x = \frac{z-7y}{5}$
C) $x = \frac{z}{5} + 7y$
D) $x = 5(z + 7y)$
17. Find *all* solutions to the equation.

$$x^2 + 2x = 15$$

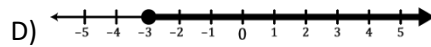
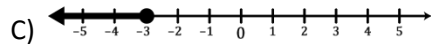
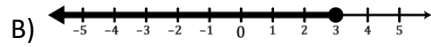
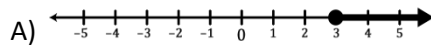
- A) $x = 3$ or $x = -5$
B) $x = -3$ or $x = 5$
C) $x = 3$ or $x = 5$
D) $x = -3$ or $x = -5$
18. What is the value of x in the right triangle?



- A) $\sqrt{10}$
B) $2\sqrt{13}$
C) 10
D) $2\sqrt{5}$

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

$$2x - 3 \geq 5x + 6$$



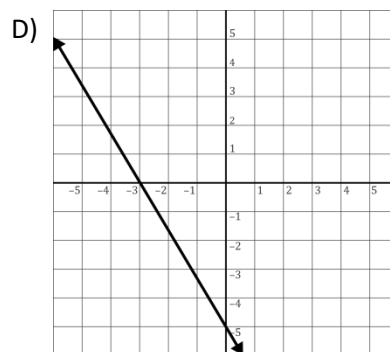
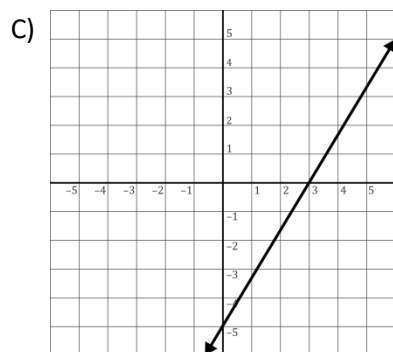
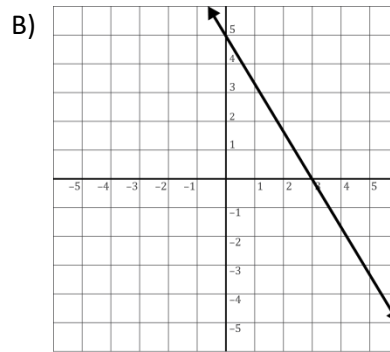
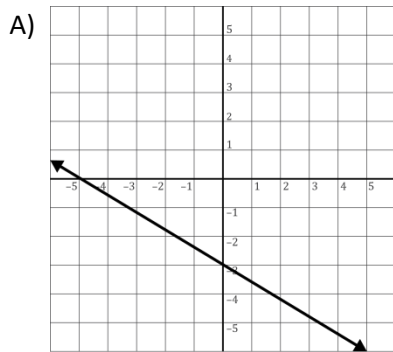
20. Given $a = 3$ and $b = -1$, evaluate the expression given below.

$$ab - b^2$$

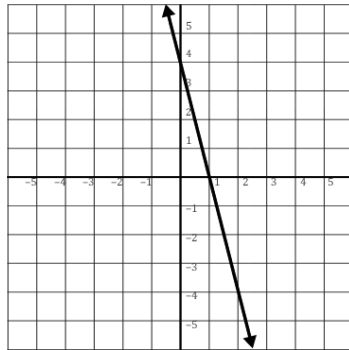
- A) -4
- B) -2
- C) 2
- D) 4

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

$$5x + 3y = -15$$



22. Find the equation of the line passing through the points $(-1, 7)$ and $(2, -8)$. Write the equation in slope-intercept form.
- A) $y = -5x + 2$
B) $y = -5x + 7$
C) $y = 5x + 12$
D) $y = 5x - 18$
23. Find the equation of the horizontal line passing through the point $(-5, 3)$.
- A) $x = -5$
B) $y = -\frac{3}{5}x$
C) $y = 3$
D) $y = x + 3$
24. Find the slope and y -intercept for the graph of the equation.
 $6x - 7y = 35$
- A) Slope = $\frac{6}{7}$ and y -intercept = $(0, -5)$
B) Slope = $-\frac{6}{7}$ and y -intercept = $(0, -5)$
C) Slope = $\frac{7}{6}$ and y -intercept = $(0, 35)$
D) Slope = $-\frac{7}{6}$ and y -intercept = $(0, 35)$
25. What is the slope of the line graphed below?



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

Answer Key

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Sample E

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