



CUNY Elementary Algebra Final Exam

Sample A
August 2012

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

1. Simplify.

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

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

2. Simplify completely.

$$\sqrt{5}(\sqrt{15} + \sqrt{5})$$

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

3. Multiply. Give the answer in scientific notation.

$$(3 \times 10^6)(4 \times 10^{-2})$$

- A) 12×10^4
- B) 1.2×10^4
- C) 1.2×10^5
- D) 1.2×10^3

4. Simplify.

$$\frac{x^5x^7}{(x^3)^2}$$

- A) x^2
- B) x^6
- C) x^7
- D) x^{29}

5. Simplify completely.

$$(5x^2 - 7x + 9) - (-2x^2 - 3x + 2)$$

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

6. Multiply.

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

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

7. Simplify completely.

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

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

8. Factor
- completely*
- .

$$36x^2y - 100y^3$$

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

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

$$2x^2 - x - 55$$

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

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

$$21ab - 14ax + 15by - 10xy$$

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

11. 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) $15 = 2(12 - n)$

12. Solve for n .

$$5(8 - n) = 3n - 16$$

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

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

$$\begin{aligned}x + 3y &= 2 \\ -3x - 8y &= 4\end{aligned}$$

- A) $y = -2$
- B) $y = 10$
- C) $y = 6$
- D) $y = -10$

14. Solve for x .

$$z = 5x + y$$

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

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

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

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

15. Find *all* solutions to the equation.

$$4b^2 + 8b = 0$$

A) Only $b = -2$

B) Only $b = 2$

C) $b = 0$ or $b = 2$

D) $b = 0$ or $b = -2$

16. Find *all* solutions to the equation.

$$10x^2 = 490$$

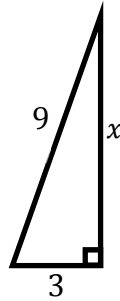
A) $x = 7$ or $x = 49$

B) $x = 0$ or $x = 49$

C) $x = 7$ or $x = -7$

D) Only $x = 7$

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



- A) $6\sqrt{2}$
 B) $2\sqrt{3}$
 C) 6
 D) $3\sqrt{10}$
18. Find the graph of the solution to the inequality.

$$3x + 5 < 6x - 1$$

- A)
- B)
- C)
- D)

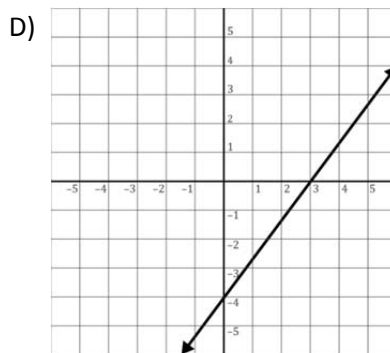
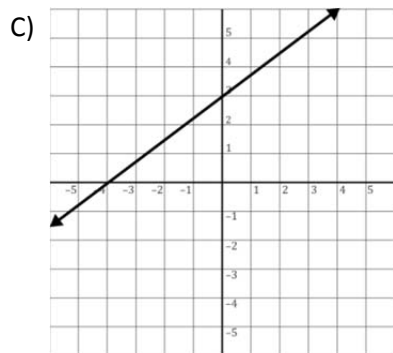
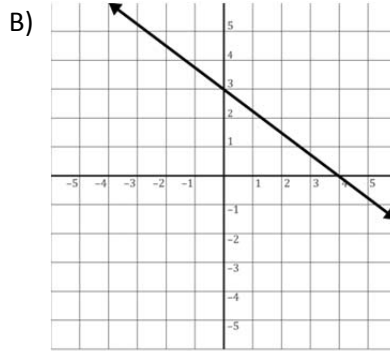
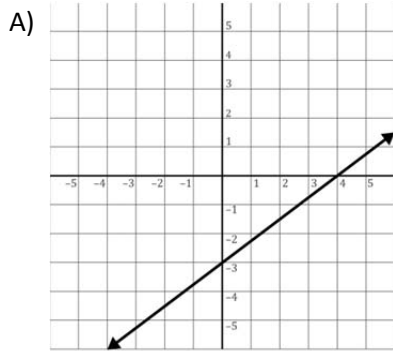
19. Evaluate $g(2)$ for the function $g(x)$.

$$g(x) = 3x^2 + 5x - 2$$

- A) 44
 B) 24
 C) 20
 D) 48

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

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



21. 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) $y = -6x - 9$
- D) $y = -2x - 1$

22. Find the equation of the vertical line passing through the point $(-5, -2)$.
- A) $y = x - 2$
 - B) $y = -2$
 - C) $x = -5$
 - D) $y = \frac{2}{5}x - 2$
23. Find the slope and y -intercept for the graph of the equation.
 $3x + 4y = 8$
- 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 = $(0, 8)$
24. If 6 gallons of gas cost \$24, how much does 10 gallons of gas cost?
- A) \$60
 - B) \$30
 - C) \$96
 - D) \$40
25. During the course of a year, the price of a house increased from \$200,000 to \$250,000 . What was the percent increase in price?
- A) 5%
 - B) 20%
 - C) 25%
 - D) 50%

Answer Key

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Sample A

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