



## **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 allowed to use a *scientific calculator* on this exam.

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.

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

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

3. Simplify.

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

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

4. Simplify.

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

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

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5. Simplify.

$$(6x^3y^6)^2$$

- A)  $6x^6y^{12}$
- B)  $12x^6y^{12}$
- C)  $36x^5y^8$
- D)  $36x^6y^{12}$

6. 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)  $7x^2 - 4x + 11$

7. 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)  $2x^3 + 8x^2 - 32x + 30$

8. Simplify completely.

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

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

9. Factor *completely*.

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

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

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

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

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

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

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

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

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  $x$ .

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

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

14. Solve for  $n$ .

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

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

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15. 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)  $y = -6$
- B)  $y = 10$
- C)  $y = 6$
- D)  $y = -10$

16. 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)  $x = 5(z - y)$

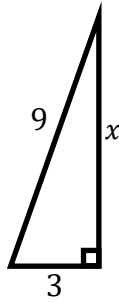
17. Find *all* solutions to the equation.

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

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

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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.

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

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

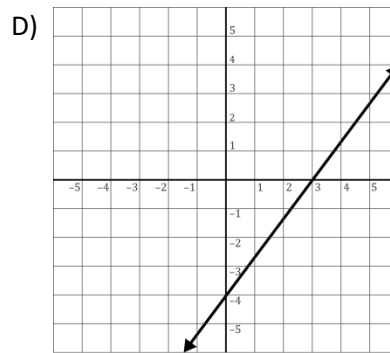
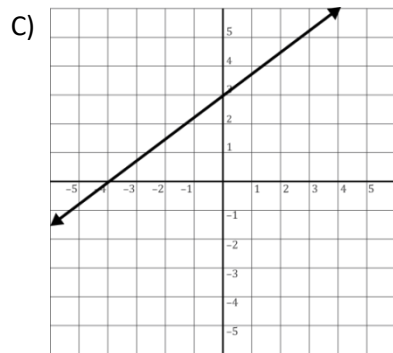
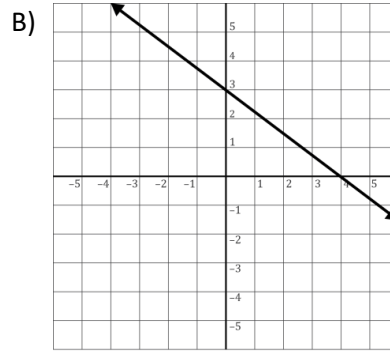
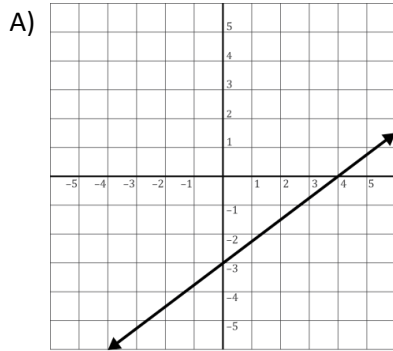
20. Given  $x = 2$  and  $y = -3$ , evaluate the expression given below.

$$2x^2 - 3xy - 2y^2$$

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

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21. Which of the following is the graph of the equation?  
 $-3x + 4y = 12$



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  $(-5, -2)$ .

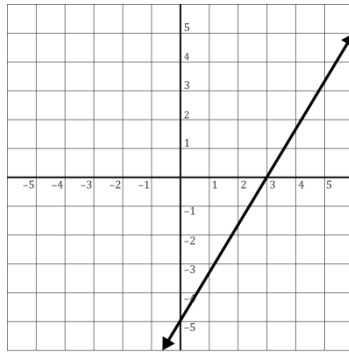
- A)  $y = x - 2$
- B)  $y = -2$
- C)  $x = -5$
- D)  $y = \frac{2}{5}x - 2$

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24. 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 =  $(0, 8)$
25. What is the slope of the line graphed below?



- A)  $-\frac{5}{3}$
- B)  $-\frac{3}{5}$
- C)  $\frac{3}{5}$
- D)  $\frac{5}{3}$



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### Answer Key

#### CUNY Elementary Algebra Final Exam

#### Sample D

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