



CUNY Elementary Algebra Final Exam

Sample B
August 2012

**For the most up-to-date information on this exam, please visit
<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.

$$\frac{\sqrt{7}\sqrt{42}}{\sqrt{3}}$$

- A) $7\sqrt{14}$
- B) $2\sqrt{7}$
- C) $49\sqrt{2}$
- D) $7\sqrt{2}$

3. Divide. Give the answer in scientific notation.

$$\frac{6 \times 10^3}{8 \times 10^6}$$

- A) 0.75×10^{-3}
- B) 7.5×10^{-4}
- C) 7.5×10^{-3}
- D) 7.5×10^{-2}

4. Simplify.

$$\frac{w^3x^6}{w^3x^{-4}}$$

- A) x^{10}
- B) wx^{10}
- C) wx^2
- D) x^2

5. 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) $8x^2 + 3x - 8$

6. 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) $3x^3 - 18x^2 + 42x - 20$

7. 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) $-15x^4 - 4x^2 + 1$

8. Factor
- completely*
- .

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

- A) $2(9x^3 - 100xy^2)$
- B) $2x(9x^2 - 100y^2)$
- C) $2x(3x - 10y)(3x + 10y)$
- D) $2x(3x - 10y)^2$

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

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

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

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

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

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

11. 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) $7(30 - y) = 4$

12. Solve for x .

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

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

13. 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) $x = 2$
- B) $x = -10$
- C) $x = 10$
- D) $x = -7$

14. 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) $x = 5(z + 7y)$

15. 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 $x = -5$

16. Find
- all*
- solutions to the equation.

$$6x^2 = 150$$

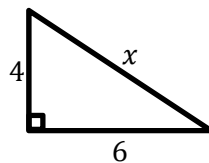
A) Only $x = 5$

B) $x = 0$ or $x = 25$

C) $x = 5$ or $x = -5$

D) $x = 5$ or $x = 25$

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



A) $13\sqrt{2}$

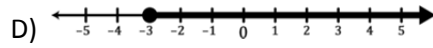
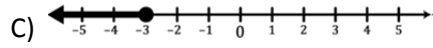
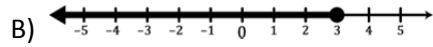
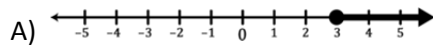
B) $2\sqrt{13}$

C) $4\sqrt{13}$

D) $2\sqrt{5}$

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

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



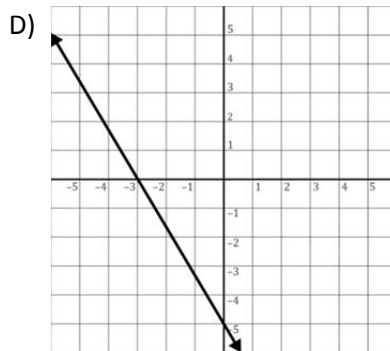
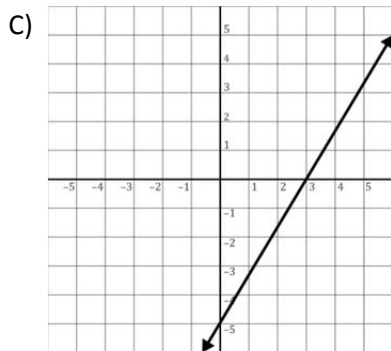
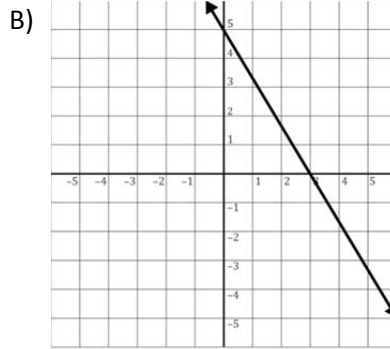
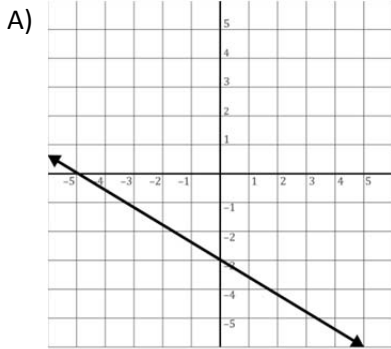
19. Evaluate $f(2)$ for the function $f(x)$.

$$f(x) = 5x^2 - 8x + 2$$

- A) 86
- B) 2
- C) 6
- D) 82

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

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



21. 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) $y = -15x - 8$

22. 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) $y = x + 3$
23. 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 = $(0, 35)$
24. If 6 beads weigh 48 grams, how many beads weigh 72 grams?
- A) 4 beads
 - B) 9 beads
 - C) 12 beads
 - D) 30 beads
25. In 2010, there were 50 fish in a pond. One year later, the number of fish decreased by 20%. How many fish were in the pond in 2011?
- A) 48 fish
 - B) 30 fish
 - C) 49 fish
 - D) 40 fish

Answer Key

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Sample B

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