

Sample Final Exam
MAT 0028

1. Simplify: $3 + 2 \cdot 8 \div 4$

1. _____

A. 10

B. 7

C. 14

D. 9

2. Simplify: $(2 + 6)^2 \div 8 - 9$

2. _____

A. -4

B. -1

C. -40

D. -64

3. Simplify: $|15| - |-2| + |-13|$

- A. 30
- B. 26
- C. 4
- D. 0

3. _____

4. Simplify: $6 - 4(x - 3) + 2x$

- A. $4x - 3$
- B. $4x - 6$
- C. $-2x + 3$
- D. $-2x + 18$

4. _____

5. Evaluate the given expression when $x = -2$, $y = 2$, and $z = 1$.

$$y - x + 3yz$$

- A. 10
- B. 6
- C. 7
- D. 0

5. _____

6. Solve for x : $2(4x + 3) = 7x - 5$

- A. $x = -1$
- B. $x = 1$
- C. $x = -11$
- D. $x = 15$

6. _____

7. Solve for x : $\frac{3}{4}x - 5 = 3$

A. $x = \frac{32}{3}$

B. $x = -\frac{32}{3}$

C. $x = -\frac{8}{3}$

D. $x = \frac{8}{3}$

7. _____

8. Solve for a : $2a - 7b = 9c$

A. $a = 9c - 7b$

B. $a = \frac{9c - 7b}{2}$

C. $a = 9c + 7b$

D. $a = \frac{9c + 7b}{2}$

8. _____

9. Solve: $4(3-x) > x+2$

A. $x < -2$

B. $x > -2$

C. $x < 2$

D. $x > 2$

9. _____

10. Five more than twice a number is three less than four times the number. Find the equation that could be used to find this number, n .

A. $2x+5 = 4x-3$

B. $5+2x = 3-4x$

C. $5(2x) = -3(4x)$

D. $2(x+5) = 4(x-3)$

10. _____

11. The width of a room is 3 feet less than its length. If the perimeter of the room is 34 feet, what is its width?

- A. 9 feet
- B. 6 feet
- C. 14 feet
- D. 7 feet

11. _____

11b. The length of a rectangle is 4 inches less than three times its width. The perimeter of the rectangle is 40 inches. What is its length?

- A. 6 inches
- B. 40 inches
- C. 14 inches
- D. 19 inches

11b. _____

~~12.~~ Identify the proportion listed below that solves this problem.

If a clerk can type 5 pages in 2 minutes, how long will it take him to type 13 pages?

- A. $\frac{5}{x} = \frac{13}{2}$
- B. $\frac{13}{5} = \frac{2}{x}$
- C. $\frac{2}{5} = \frac{13}{x}$
- D. $\frac{13}{5} = \frac{x}{2}$

~~12.~~ omit _____

13. Simplify: $(3x^4y^5)(5x^6y)$

13. _____

A. $15x^{10}y^6$

B. $8x^{10}y^5$

C. $15x^{10}y^5$

D. $8x^{10}y^6$

13b. Simplify: $(x^5yz^4)^3$

13b. _____

A. $x^8y^3z^7$

B. $3x^{15}yz^4$

C. $x^{125}y^3z^{64}$

D. $x^{15}y^3z^{12}$

14. Simplify: $\frac{x^{-6}y^8}{x^{-2}y^{-4}}$

14. _____

A. x^4y^{12}

B. $\frac{x^3}{y^4}$

C. $\frac{y^{12}}{x^4}$

D. $\frac{y^4}{x^4}$

15. Simplify: $-\left(\frac{x^4 y^5}{xy^{-6}}\right)^0$ 15. _____

A. $-xy$

B. $-xy^{11}$

C. 1

D. -1

15b. Simplify: $-4x^2 y^0$ 15b. _____

A. $-4x^2$

B. $\frac{x^2}{4}$

C. $\frac{x^2 y}{4}$

D. $-4x^2 y$

16. Convert to standard form: 16. _____

1.23×10^{-4}

A. 12,300

B. 0.0123

C. 0.000123

D. 0.0000123

16b. Convert to scientific notation: 16b. _____

0.00000002

A. 2×10^8

B. 2×10^7

C. 2×10^{-8}

D. 2×10^{-1}

17. Simplify: $(4x^2 + x - 8) - (5x^2 - 7x + 2)$

A. $-x^2 - 6x - 10$

B. $-x^4 - 6x^2 - 6$

C. $-x^2 + 8x - 10$

D. $-x^2 - 6x - 6$

17. _____

18. Simplify: $7x^6(3x^4 - 2)$

A. $21x^{24} - 2$

B. $21x^{10} - 14x^6$

C. $21x^{10} - 2$

D. $10x^{10} - 14x^6$

18. _____

18b. Simplify: $4x^3(3x^6 - 5x)$

A. $12x^{18} - 20x^3$

B. $12x^9 - 20x^4$

C. $12x^9 - 9x^4$

D. $12x^3 - 20x$

18b. _____

19. Simplify: $(3x+4)(5x-8)$

A. $15x^2 + 4x - 32$

B. $15x^2 - 4x - 32$

C. $15x^2 - 44x - 32$

D. $15x^2 - 4x - 4$

19. _____

20. Factor completely: $20x^3 - 16x^2 + 8x$

A. $4x(5x^2 - 16x + 8)$

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

C. $4x(5x^2 - 4x + 2)$

D. $8x(12x^2 - 2x + 1)$

20. _____

21. Factor completely: $16x^2 - y^2$

A. $(16x + y)(x - y)$

B. $(4x + y)(4x - y)$

C. $(4x - y)(4x - y)$

D. $(8x + y)(8x - y)$

21. _____

21b. Factor completely: $100x^2 - 81$

A. $(10x + 9)(5x + 3)(5x - 3)$

B. $(50x + 9)(50x - 9)$

C. $(10x - 9)(10x + 9)$

D. $(10x - 9)^2$

21b. _____

22. Factor completely: $2x^3 - 6x^2 + 5x - 15$

A. $(x - 3)(2x^2 + 5)$

B. $(2x^2 + 5)(x - 3)^2$

C. $(2x^2 - 5)(x + 3)$

D. $(2x + 5)(x + 5)(x - 5)$

22. _____

22b. Factor completely: $4ax + 12a - 7bx - 21b$

A. $(x + 3)(4a - 7b)$

B. $(x + 3)(4a - 7b)^2$

C. $(x - 3)(4a - 7b)$

D. $(4x + 3)(a + 7b)$

22b. _____

23. Identify a factor of the trinomial below.

$$2x^2 - 9x - 18$$

- A. $(x - 9)$
- B. $(x - 6)$
- C. $(x - 2)$
- D. $(x - 1)$

23. _____

23b. Identify a factor of the trinomial below.

$$6x^2 - 7x - 5$$

- A. $(3x - 5)$
- B. $(2x - 1)$
- C. $(3x + 1)$
- D. $(3x + 5)$

23b. _____

24. Simplify: $\frac{x^2 - 25}{2x^2 + 9x - 5}$

- A. $\frac{x - 5}{2x - 1}$
- B. $\frac{x + 5}{2x + 1}$
- C. $\frac{-5}{9x + 2}$
- D. $\frac{5}{2}$

24. _____

25. Solve: $x^2 - x - 42 = 0$

A. $x = -21, x = 2$

B. $x = 21, x = -2$

C. $x = 6, x = -7$

D. $x = -6, x = 7$

25. _____

26. Solve: $2x^2 + 5x - 18 = 0$

A. $x = -6, x = \frac{3}{2}$

B. $x = -2, x = \frac{9}{2}$

C. $x = 2, x = -\frac{9}{2}$

D. $x = 6, x = -\frac{3}{2}$

26. _____

27. Assuming the variable represents a non-negative number, simplify completely:

$$\sqrt{18x^5}$$

27. _____

A. $x\sqrt{18x^4}$

B. $3\sqrt{6x^5}$

C. $3x\sqrt{2x}$

D. $3x^2\sqrt{2x}$

28. Simplify: $\sqrt{45} - \sqrt{20}$

28. _____

A. 1

B. $\sqrt{5}$

C. $5\sqrt{5}$

D. $-\sqrt{5}$

29. Find the x -intercept for $4x - 8y = 32$

29. _____

A. (0, 4)

B. (0, -4)

C. (8, 0)

D. (-8, 0)

29b. Find the y -intercept for $4x - 8y = 32$

29b. _____

A. (0, 4)

B. (0, -4)

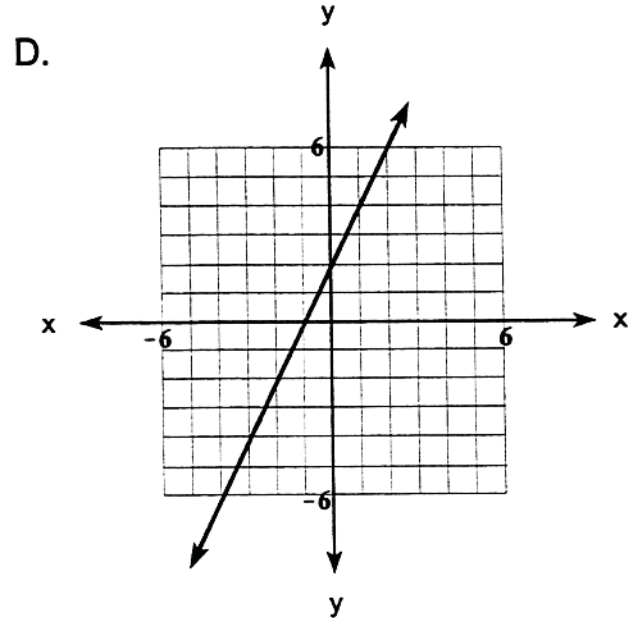
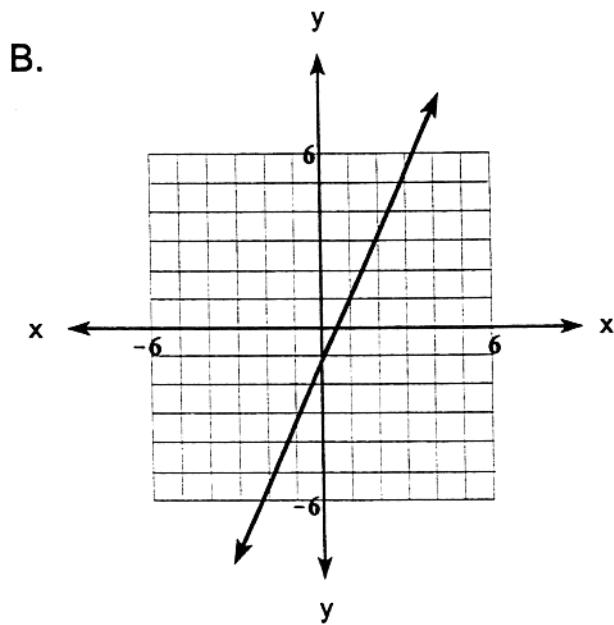
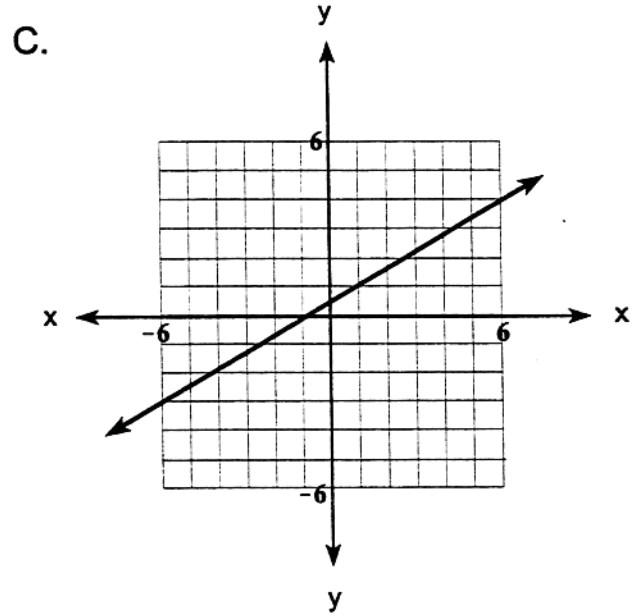
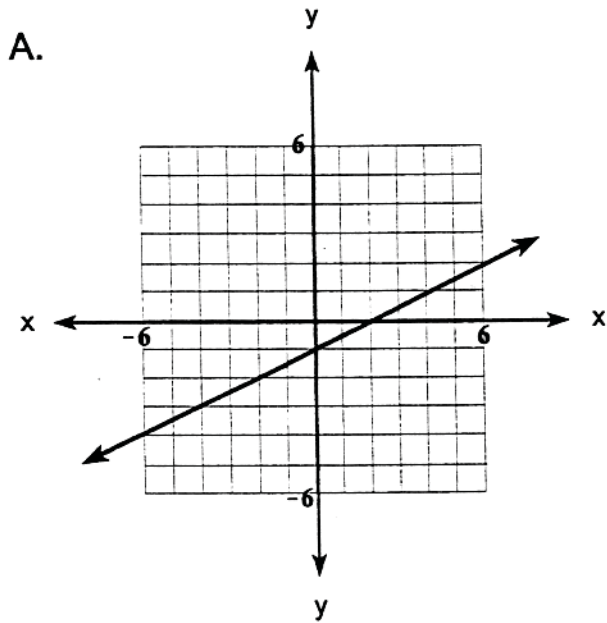
C. (8, 0)

D. (-8, 0)

30. Find the graph that best matches the given linear equation.

$$y = \frac{1}{2}x - 1$$

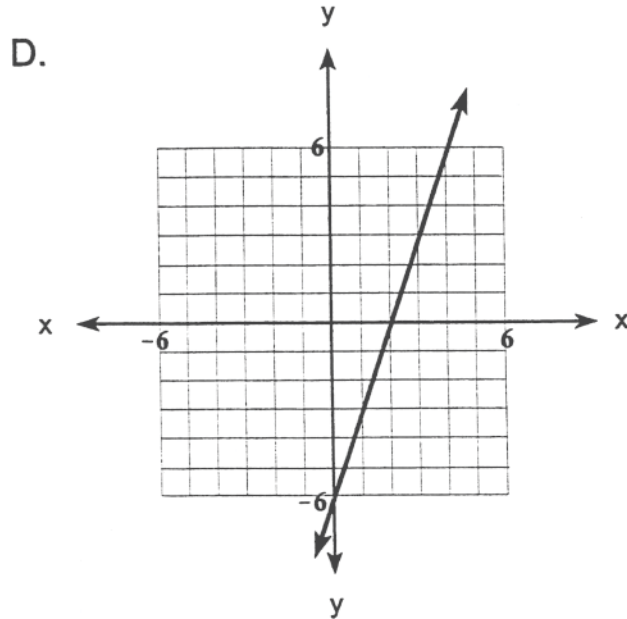
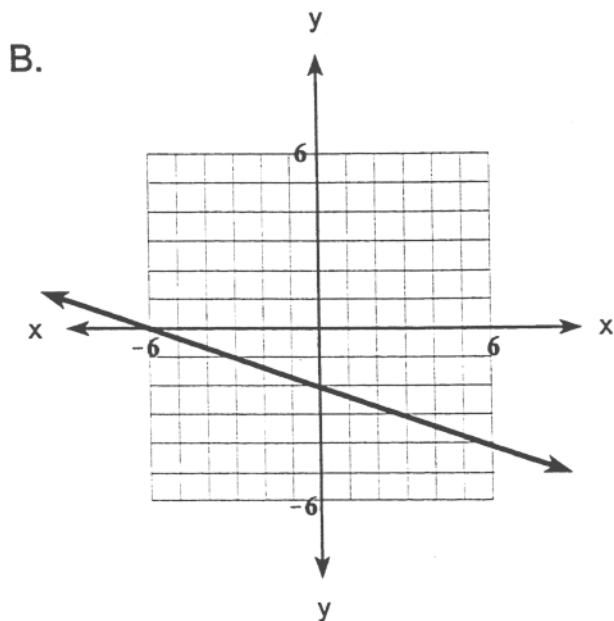
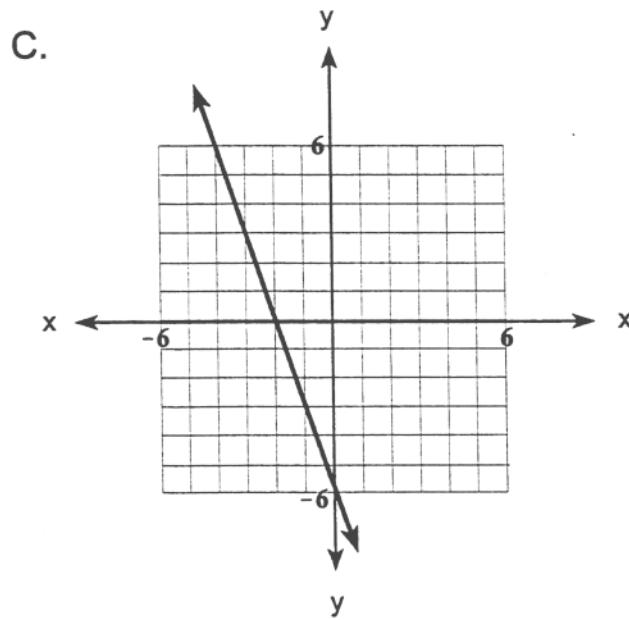
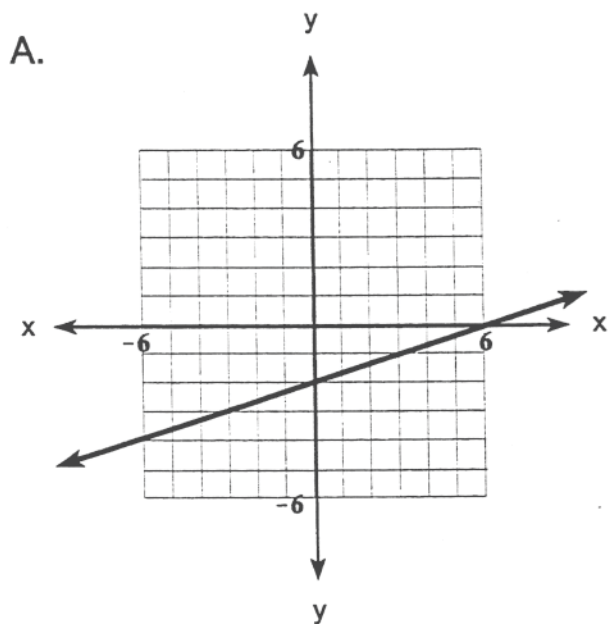
30. _____



30b. Find the graph that best matches the given linear equation.

$$3x - y = 6$$

30b. _____



ANSWERS

<u>1)</u>	<u>B</u>
<u>2)</u>	<u>B</u>
<u>3)</u>	<u>B</u>
<u>4)</u>	<u>D</u>
<u>5)</u>	<u>A</u>
<u>6)</u>	<u>C</u>
<u>7)</u>	<u>A</u>
<u>8)</u>	<u>D</u>
<u>9)</u>	<u>C</u>
<u>10)</u>	<u>A</u>
<u>11)</u>	<u>D</u>
<u>11B)</u>	<u>C</u>
<u>12)</u>	<u>D</u>
<u>13)</u>	<u>A</u>
<u>13B)</u>	<u>D</u>
<u>14)</u>	<u>C</u>
<u>15)</u>	<u>D</u>
<u>15B)</u>	<u>A</u>
<u>16)</u>	<u>C</u>
<u>16B)</u>	<u>C</u>
<u>17)</u>	<u>C</u>
<u>18)</u>	<u>B</u>
<u>18B)</u>	<u>B</u>
<u>19)</u>	<u>B</u>
<u>20)</u>	<u>C</u>
<u>21)</u>	<u>B</u>
<u>21B)</u>	<u>C</u>
<u>22)</u>	<u>A</u>
<u>22B)</u>	<u>A</u>
<u>23)</u>	<u>B</u>
<u>23B)</u>	<u>A</u>
<u>24)</u>	<u>A</u> <u>B</u>
<u>25)</u>	<u>D</u>
<u>26)</u>	<u>C</u>
<u>27)</u>	<u>D</u>
<u>28)</u>	<u>B</u>
<u>29)</u>	<u>C</u>
<u>29B)</u>	<u>B</u>
<u>30)</u>	<u>A</u>
<u>30B)</u>	<u>D</u>