

Review for the Final Exam
MAT 0024 College Prep Algebra

Name _____
Class _____

Chapter 1

- 1) **Simplify:** $-6 - (-3) + (-2)$
A. 1 B. -1 C. -5 D. -11
- 2) **Simplify:** $8 + 2(5 - 3) \div 4$
- 3) **Simplify:** $7 - 3 \cdot 2 + (4 - 1)^2$
A. 16 B. 25 C. 17 D. 10
- 4) **Simplify:** $\frac{-2(3) - 4}{-3^2 + 1}$
- 5) **Simplify:** $4 - 3^2 + (-2)^3 + (-1)^4$
A. -12 B. -7 C. -10 D. 0
- 6) **Simplify:** $(-3)^2 \cdot (-2)^3 \cdot (-1)^4$
- 7) **Simplify:** $|8| + |-6| + |0|$
A. -14 B. -2 C. 2 D. 14
- 8) **Simplify:** $|-4| + |5| - |-2|$
- 9) Evaluate the expression $x^2 + y^3$ given that $x = 4$ and $y = 2$
A. 14 B. 22 C. 24 D. 16
- 10) Given that $x = 3$ and $y = 4$, evaluate the expression $2x^2 + xy + 3y$
- 11) Evaluate the expression $x^2 - 2y - xy^2$ for $x = -3$ and $y = -1$
A. 8 B. 10 C. 6 D. 14

- 12) **Simplify:** $5x + 1 + 2x + x + 3$
- 13) **Simplify:** $4x + 2(x - 3) - 5$
A. $6x - 1$ B. $6x + 8$ C. $6x - 11$ D. $6x - 8$
- 14) **Simplify:** $5 - 2(x - 1) - (x - 6)$
A. $2x + 3$ B. $-3x + 13$ C. $-3x - 2$ D. $2x - 9$
- 15) **Simplify:** $5x - 2[x + 3(x + 1)]$
- 16) **Simplify:** $2x - 3[x - 4(x - 1) - 5]$
A. $11x + 18$ B. $11x + 27$ C. $11x + 3$ D. $11x + 7$

Chapter 2

- 17) **Solve:** $2x - 3 = 7$
- 18) **Solve:** $8 - 3x = 2$
A. $x = 2$ B. $x = -2$ C. $x = \frac{10}{3}$ D. $x = -\frac{10}{3}$
- 19) **Solve:** $2(2x - 3) + 1 = 11$
- 20) **Solve:** $3(x - 4) - (x - 1) = 1$
A. $x = 7$ B. $x = 6$ C. $x = 3$ D. $x = 5$
- 21) **Solve:** $5x + 2 = 3x + 8$
- 22) **Solve:** $x - 3 = 4x - 1$
A. $x = -\frac{2}{3}$ B. $x = -\frac{3}{2}$ C. $x = \frac{2}{5}$ D. $x = -1$
- 23) **Solve:** $2x - 3 = 2(x - 1)$
A. $x = \frac{1}{2}$ B. $x = \frac{5}{4}$ C. All Real Numbers D. No Solution

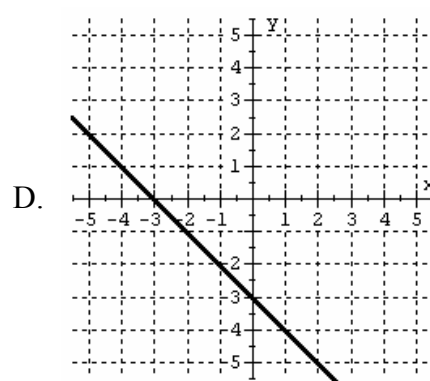
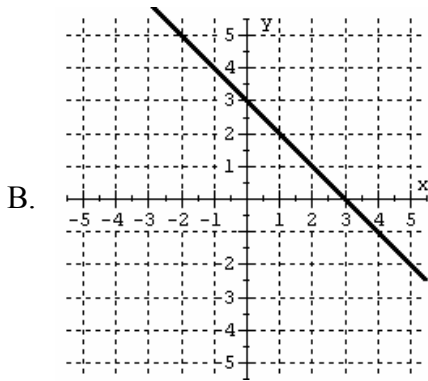
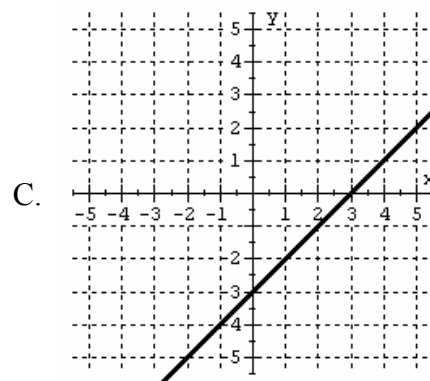
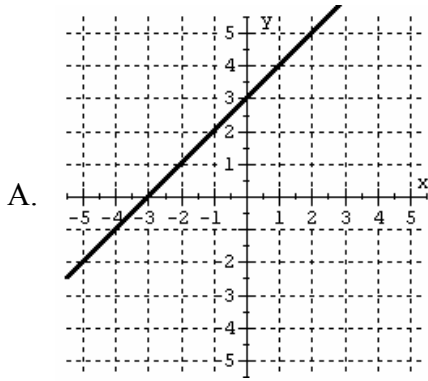
- 24) **Solve:** $4x - 1 = 5(x - 2) - 4$
- 25) **Solve:** $\frac{1}{3}x + \frac{1}{2} = \frac{3}{4}$
A. $x = 12$ B. $x = \frac{3}{2}$ C. $x = \frac{3}{4}$ D. $x = 1$
- 26) **Solve:** $\frac{1}{4}x + \frac{1}{3} = \frac{1}{3}x - \frac{2}{3}$
- 27) **Solve:** $\frac{2}{3}x + 1 = \frac{1}{2}x - 2$
A. $x = -18$ B. $x = -6$ C. $x = -3$ D. $x = -1$
- 28) **Solve for L :** $P = 2L + 2W$
A. $L = \frac{P - 2}{2W}$ B. $L = \frac{P}{W}$ C. $L = P - W$ D. $L = \frac{P - 2W}{2}$
- 29) **Solve for T :** $D = R \cdot T$
- 30) **Solve for y :** $2x - 3y = 6$
A. $y = \frac{-2x + 6}{-3}$ B. $y = \frac{2x + 6}{3}$ C. $y = \frac{-2x + 6}{3}$ D. $y = \frac{2x + 6}{-3}$
- 31) **Solve the inequality:** $3x - 2 \leq 7$
A. $x \leq 3$ B. $x \leq \frac{5}{3}$ C. $x \leq 6$ D. $x \leq 2$
- 32) **Solve the inequality:** $3 - 2x > -5$
- 33) **Solve:** $3(x + 2) < x - 4$
A. $x < -5$ B. $x > -5$ C. $x < -3$ D. $x < \frac{2}{3}$
- 34) **Solve:** $x + 2 \geq 2x - 1$

- 35) **Translate into an algebraic expression:** Four less than a number.
A. $4 - x$ B. $4x$ C. $-4x$ D. $x - 4$
- 36) **Translate:** Six more than twice a number is nine.
- 37) **Translate:** 3 times the sum of a number and 2 is 1 more than the number.
A. $3x + 2 = x + 1$ B. $3(x + 2) = x + 1$ C. $3(x + 2) = 1x$ D. $3 + x + 2 = x + 1$
- 38) The second side a triangle is 4 inches longer than the first side. The third side of the triangle is 3 inches longer than the second side. If the perimeter of the triangle is 101 inches, find the length of the third side of the triangle.
A. 30 inches B. 34 inches C. $34\frac{1}{3}$ inches D. 37 inches
- 39) The length of a rectangle is twice as long as its width. If the perimeter of the rectangle is 24 feet, find the length.
- 40) A bicycle path is 5 miles long. A man walks from one end at the rate of 3 mph. At the same time, a friend bicycles from the other end, traveling at 12 mph. When will they meet?
A. $\frac{1}{4}$ hour B. $\frac{1}{3}$ hour C. $\frac{1}{2}$ hour D. 1 hour
- 41) Suppose that two angles are supplementary angles. One of the angles has a measure of 40° . Find the measure of the other angle.

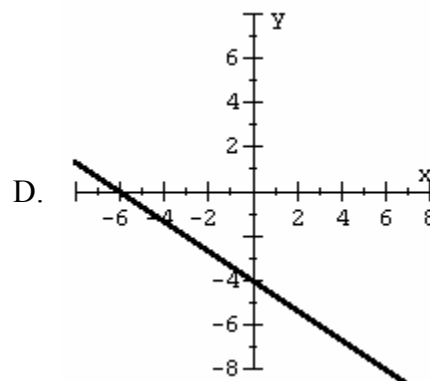
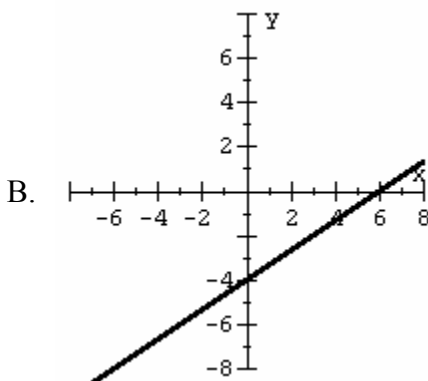
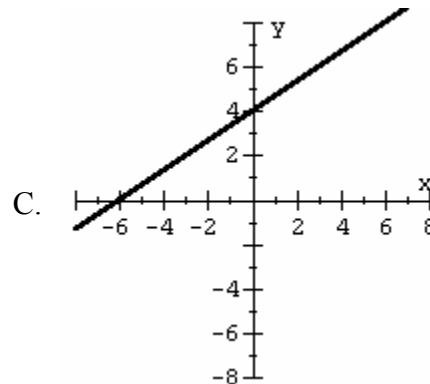
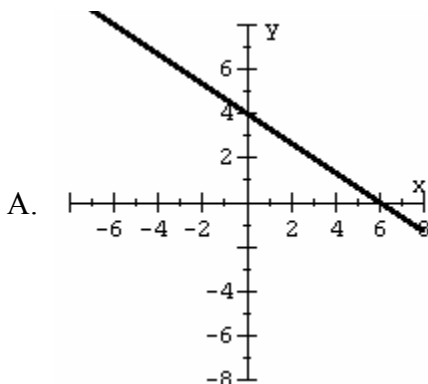
Chapter 3

- 42) In which quadrant does the graph of $(3, -5)$ lie?
- 43) Find the x-intercept of the graph of $2x + y = 8$
A. $(4, 0)$ B. $(0, 4)$ C. $(8, 0)$ D. $(6, -4)$
- 44) Find the y-intercept of the graph of $y = 3x + 2$
A. $(0, -2)$ B. $(1, 5)$ C. $\left(-\frac{2}{3}, 0\right)$ D. $(0, 2)$

45) Find the graph that best matches the linear equation $y = x - 3$



46) Find the graph that best matches the linear equation $2x - 3y = 12$



Chapter 4

- 47) **Simplify:** $(x^3)^4(x^0)^3$
A. x^{12} B. x^7 C. x^{15} D. x^{10}
- 48) **Simplify:** $(-2x^3y)^2(-3xy^4)$
- 49) **Simplify:** $\frac{8x^3y^4z^2}{6x^5yz^2}$
A. $\frac{4y^3z}{3x^2}$ B. $2x^2y^3$ C. $\frac{4y^3}{3x^2}$ D. $\frac{2y^4}{x^2}$
- 50) **Simplify:** $(2x^{-3}yz^2)^3$
- 51) **Simplify:** $(-4x^{-3}y^0z^5)(2x^{-2}yz^{-3})$
A. $\frac{-8yz^2}{x^6}$ B. $\frac{-8yz^2}{x^5}$ C. $\frac{-8y}{x^6z^{15}}$ D. $\frac{-8z^2}{x^5}$
- 52) **Simplify:** $\left(\frac{2x^3y^{-2}}{4xy^2}\right)^3$
- 53) **Simplify:** $\frac{-3x^{-4}yz^{-1}}{x^3y^2z^{-6}}$
A. $\frac{-3z^5}{x^7y}$ B. $\frac{z^5}{3x^7y}$ C. $\frac{-3z^7}{xy}$ D. $\frac{-3}{xyz^7}$
- 54) Write 37,000 in scientific notation
A. 3.7×10^4 B. 3.7×10^{-4} C. 3.7×10^3 D. 3.7×10^{-3}
- 55) Write 1.2×10^{-3} in standard form
A. 12,000 B. 1,200 C. 0.0012 D. 0.00012

- 56) **Subtract:** $(8x^2 + 3x + 2) - (5x^2 + 4x + 1)$
- 57) **Simplify:** $(3x^2 - 2x - 5) - (7x^2 - 3x + 1)$
A. $-4x^2 + x - 4$ B. $-4x^2 - 5x - 4$ C. $-4x^2 + x - 6$ D. $-4x^2 - 5x - 6$
- 58) **Simplify:** $3xy^2(2x + 5)$
- 59) **Simplify:** $-2x^3y(3x^2 - 2xy + 4y^2)$
A. $-6x^5y + 4x^4y^2 - 8x^3y^2$ C. $-6x^6y + 4x^4y^2 - 8x^3y^3$
B. $-6x^5y + 4x^4y^2 - 8x^3y^3$ D. $-6x^6y + 4x^3y - 8x^3y^2$
- 60) **Multiply:** $(x + 2)(x^2 + 3x + 1)$
- 61) **Simplify:** $(3x - 5)(4x^2 - 2x - 1)$
A. $12x^3 - 26x^2 + 7x + 5$ C. $12x^3 - 2x + 5$
B. $12x^3 - 26x^4 + 7x^2 + 5$ D. $12x^3 - 14x^2 + 7x + 5$
- 62) **Simplify:** $(x - 7)(x + 5)$
- 63) **Simplify:** $(3x - 4)(2x - 3)$
A. $6x^2 + 12$ B. $6x^2 - 12$ C. $6x^2 - x + 12$ D. $6x^2 - 17x + 12$
- 64) **Simplify:** $(5x + 2)(5x - 2)$
- 65) **Simplify:** $(x + 3)^2$
A. $x^2 + 9$ B. $x^2 + 6$ C. $x^2 + 3x + 9$ D. $x^2 + 6x + 9$
- 66) **Simplify:** $(7x - 2)^2$

67) **Simplify:** $\frac{8x + 2}{2}$

68) **Simplify:** $\frac{9x^4y^3 - 12x^2y}{3x^2y}$

A. $9x^4y^3 - 4$ B. $3x^2y^2 - 4$ C. $3x^2y^2 - 12x^2y$ D. $6x^2y^2 - 9$

69) **Divide:** $x + 4 \overline{) x^2 - 5x - 36}$

70) **Divide:** $(6x^2 - 7x - 2) \div (2x - 1)$

A. $3x - 2 + \frac{-4}{2x - 1}$

C. $3x - 10$

B. $3x - 2$

D. $3x - 5 + \frac{3}{2x - 1}$

Chapter 5

71) **Factor completely:** $8x + 4$

72) **Factor completely:** $3x^2y + 6xy^2$

A. $3xy(xy + 2y)$ B. $3xy(x + 2)$ C. $3xy(x + 2y)$ D. $3xy(x + 6xy^2)$

73) **Factor completely:** $2ax + 2bx + 3a + 3b$

74) **Factor completely:** $y^3 - 3y^2 - 5y + 15$

A. $(y - 5)(y - 3)$

C. $(y - 3)^2(y^2 - 5)$

B. $(y - 3)(y^2 - 5)$

D. $(y - 3)(y - 5)(y - 1)$

75) **Factor completely:** $x^2 - 16$

- 76) **Factor completely:** $25x^2 - 49y^2$
A. Does Not Factor
B. $(5x + 7y)(5x - 7y)$
C. $(5x - 7y)^2$
D. $(25x + y)(x - 49y)$
- 77) **Factor completely:** $4x^2 + 1$
- 78) **Factor completely:** $18x^2 + 24x + 8$
A. $2(9x^2 + 12x + 4)$
B. $2(3x + 2)^2$
C. $2(3x + 4)(3x + 1)$
D. $2(3x + 4)^2$
- 79) **Factor completely:** $6x^3 - 15x^2 - 9x$
- 80) **Factor completely:** $x^3 + 12x^2 + 36x$
- 81) **Identify a factor of:** $x^2 - 5x - 6$
A. $x - 2$
B. $x - 3$
C. $x - 1$
D. $x - 6$
- 82) **Identify a factor of:** $16x^2 - 14x + 3$
A. $8x + 3$
B. $8x - 3$
C. $4x - 1$
D. $4x - 3$
- 83) **Solve:** $x^2 + 4x = 0$
A. $x = 0, x = 4$
B. $x = -4, x = 0$
C. $x = -2, x = 2$
D. No Solution
- 84) **Solve:** $x^2 - 3x - 4 = 0$
- 85) **Solve:** $x^2 + 13x = 48$
A. $x = 6, x = 8$
B. $x = -16, x = 3$
C. $x = -3, x = 16$
D. $x = 13, x = 48$

- 86) **Solve:** $5x^2 - 6x + 1 = 0$
- 87) **Solve:** $3x^2 - 8x = 3$
- A. $x = -\frac{1}{3}, x = 3$ C. $x = \frac{1}{3}, x = 3$
- B. $x = -1, x = 3$ D. $x = 1, x = 3$

Chapter 6

- 88) **Solve the proportion:** $\frac{5}{x} = \frac{2}{3}$
- 89) **Solve:** $\frac{1}{x+4} = \frac{2}{x-3}$
- A. $x = -11$ B. $x = -7$ C. $x = 5$ D. $x = -\frac{11}{3}$
- 90) **Identify the proportion listed below that solves this problem:**
Suppose that a welder can build 3 tool boxes in 8 hours. How many tool boxes can the welder build in a 40 hour work week?
- A. $\frac{3}{40} = \frac{x}{8}$ B. $\frac{3}{x} = \frac{40}{8}$ C. $\frac{3}{8} = \frac{x}{40}$ D. $\frac{3}{8} = \frac{40}{x}$
- 91) **Identify the proportion listed below that solves this problem:**
A tree casts a shadow 18 feet long at the same time that a woman 5 feet tall casts a shadow that is 3 feet long. Find the height of the tree.
- A. $\frac{18}{3} = \frac{5}{x}$ B. $\frac{x}{18} = \frac{5}{3}$ C. $\frac{18}{5} = \frac{3}{x}$ D. $\frac{18}{x} = \frac{5}{3}$
- 92) **Simplify:** $\frac{x^2 + 6x + 8}{x^2 + 4x + 4}$

93) **Simplify:** $\frac{x^2 - x - 6}{x^2 - 9}$

A. $\frac{x - 2}{x + 3}$ B. $-x + 3$ C. $\frac{x - 2}{x - 3}$ D. $\frac{x + 2}{x + 3}$

94) **Multiply:** $\frac{x^2 + 3x - 4}{x^2 + 2x - 8} \cdot \frac{x^2 - 4}{x^2 - 2x + 1}$

A. $\frac{x - 2}{x + 1}$ B. $\frac{x - 2}{x - 4}$ C. $\frac{x + 2}{x - 4}$ D. $\frac{x + 2}{x - 1}$

95) **Divide:** $\frac{8x^2y^6}{x^2 + 9x + 8} \div \frac{4x^3y}{x + 8}$

A. $\frac{32x^5y^7}{(x + 1)(x + 8)^2}$ B. $\frac{2y^5}{x(x + 1)}$ C. $\frac{32x^6y^6}{(x + 1)(x + 8)^2}$ D. $\frac{4y^5}{x(x + 1)}$

Chapter 9

96) **Simplify:** $\sqrt{12}$

A. $2\sqrt{3}$ B. $3\sqrt{4}$ C. $3\sqrt{2}$ D. $6\sqrt{2}$

97) **Simplify:** $\sqrt[3]{-8}$

98) **Simplify Completely:** $\sqrt{72x^2y^5}$ (Assume $x \geq 0$ and $y \geq 0$)

A. $3xy^2\sqrt{8y}$ B. $6xy^2\sqrt{2y}$ C. $6xy^4\sqrt{2y}$ D. $6xy^4\sqrt{2xy}$

99) **Simplify:** $\sqrt{3} + \sqrt{27}$

A. $\sqrt{30}$ B. $3\sqrt{3}$ C. $4\sqrt{3}$ D. $10\sqrt{3}$

100) **Simplify:** $3\sqrt{98} - \sqrt{18}$