

Math 52

Midterm Practice Exam

On the Midterm Exam, you must show all work to get full credit.

Chapter 1:

Evaluate and simplify.

1. $-4 + (-9)$

2. $3 - (-12)$

3. $-20 - (-13)$

4. $(10)^1 + (-1)^4$

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

6. $(-6)^0 + (-5)^1$

7. $\frac{-7 - 3^2}{(-2)^3}$

8. $|2 - 8| - |-9|$

9. $-24 \div 6 \cdot 2 - 4$

10. Evaluate $\frac{10 - w}{-3k}$
when $w = -2$ and $k = -1$

11. Evaluate $\frac{x - m}{s}$
when $x = 28$, $m = 40$, and $s = 6$

Simplify each by combining like terms, wherever possible.

12. $b^3 + (-5b^3)$

13. $-2h - (-9h)$

14. $4x^2 - 2x + 7x^2 - x$

15. $-5x^2 - 4y + 9x^2 + 3y$

Chapter 2:

Solve each equation.

16. $3x - 7 = 5x + 11$

17. $5(x - 2) + 2x = 9x + 10 - 7x$

18. $\frac{3x}{2} - 3 = x - \frac{5}{2}$

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

20. $0.4x + 3.2 = 1.2x - 0.8$

21. $0.1x - 0.06 = 0.04x + 1.2$

Solve each proportion.

22. $\frac{x+1}{4x-2} = \frac{2}{5}$

23. $\frac{8}{2x-2} = \frac{6}{x+2}$

Solve each inequality and draw its graph on the number line.

24. $6x - 3 > -9 + 4x$

25. $2(y - 1) \geq 8 + 4y$

Chapter 3:

Solve the literal equation.

26. $I = Prt$ (Solve for P .)

27. $A = P + Pr$ (Solve for r .)

28. $Z = \frac{x - m}{d}$ (Solve for m .)

29. $ax + by = c$ (Solve for y .)

For each application problem,

You will be graded on each of these items.

1. Set up the legend for all unknown values ✓
2. identify the formula ✓
3. set up and solve the equation (show all work) ✓
4. write a sentence answering the question ✓

A chart will be provided for your convenience. You will not be graded on the chart.

- 30.** Juana has only two grandchildren, Veronica (the eldest) and Jorge. Her will states that Veronica is to receive \$15,000 more than Jorge receives (to help her pay for college). If Juana's will leaves \$103,000 to her two grandchildren, how much will each of them receive?

Sentence: _____

- 31.** The perimeter of a rectangle is 82 inches. The width is 7 inches shorter than the length. What are the length and width of the rectangle?

Sentence: _____

32. In a triangle, the measure of the largest angle is 102° . The measure of the middle angle is 6° more than twice the measure the smallest angle. What are the measures of the middle and smallest angles?

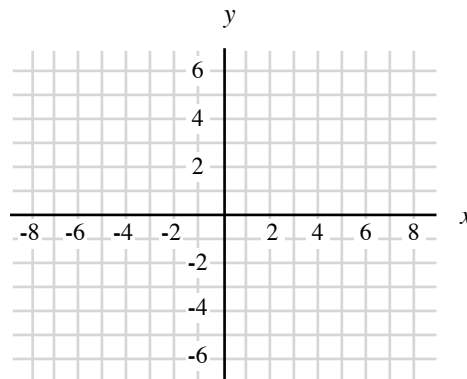
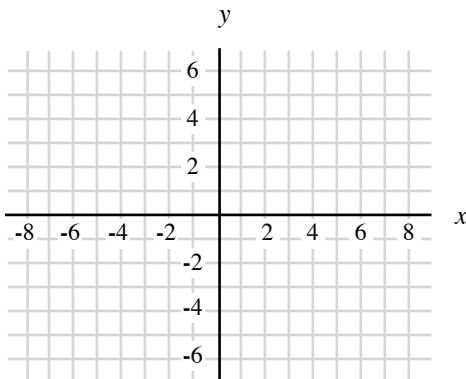
Sentence: _____

Chapter 4:

Identify the slope and the y-intercept of the line, and use them to graph the line.

33. $y = 3x - 5$

34. $y = -\frac{3}{5}x + 6$



Use the slope formula to find the slope of the line that passes through the given points. Simplify, if possible.

35. (7, -4) and (1, 6)

36. (-10, -8) and (2, 10)

Find the equation of the line that passes through the given points.

37. (0, 8) and (-6, -8)

38. (-10, 6) and (0, -9)

For each you are given the slope of a line and a point on the line. Use the information to find the y-intercept, b , and write the equation of the line.

39. (-2, 13); $m = -3$

40. (-12, -8); $m = \frac{5}{6}$

Given two points on a line, find the equation of the line by first finding its slope.

41. (-6, 4) and (12, 7)

42. (-6, -2) and (-9, -10)

Write each equation in standard form.

43. $y = 2x + 8$

44. $y = -\frac{4}{5}x - 7$

Write each equation in slope-intercept form. Also, identify the y-intercept point and the slope.

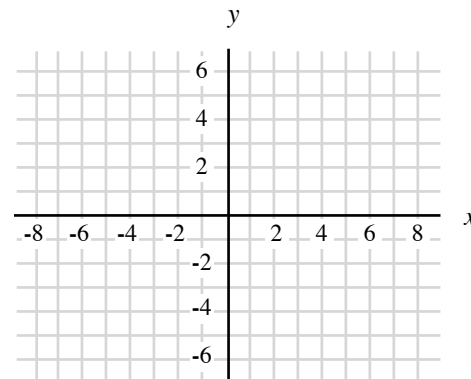
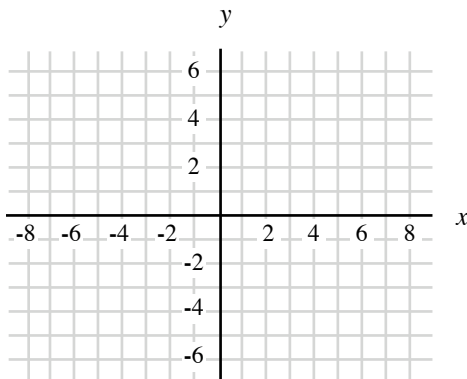
45. $x + 3y = -12$

46. $5x - 2y = -6$

Graph each line.

47. $y = 5$

48. $x = -4$



Chapter 6:

Simplify each. Write the answer with positive exponents only.

49. $5^0 + 4^1$

50. $(3y^2)(-5y^3)$

51. $(-4x^3y^5)^2$

52. 2^{-4}

53. $\left(\frac{2}{11}\right)^{-2}$

54. $\left(\frac{2x}{w}\right)^{-4}$

55. $p^{-7} \cdot p^6$

56. $h^{-8} \cdot h^{-5}$

57. $\frac{x^{-8}}{x^{-4}}$

58. $\frac{y}{y^{-5}}$

Rewrite into scientific notation.

59. 5,090,000

60. 0.00913

Expand to its natural form.

61. 7.41×10^3

62. 2.83×10^{-4}

Perform the indicated operation. Write the answer in proper scientific notation.

63. $(8.1 \times 10^7) \times (3.0 \times 10^{-3})$

64. $(2.0 \times 10^{-7}) \times (5.7 \times 10^4)$

65. $\frac{9.0 \times 10^4}{4.5 \times 10^9}$

66. $\frac{3.6 \times 10^6}{2.4 \times 10^2}$

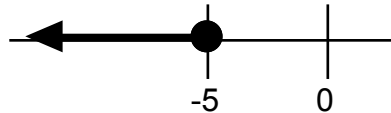
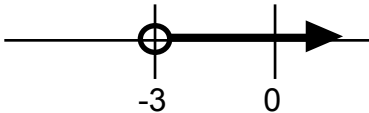
Answers

Chapter 1:

- | | | | |
|----------|------------------|----------------|-------------|
| 1. -13 | 2. 15 | 3. -7 | 4. 11 |
| 5. 1 | 6. -4 | 7. 2 | 8. -3 |
| 9. -12 | 10. 4 | 11. -2 | 12. $-4b^3$ |
| 13. $7h$ | 14. $11x^2 - 3x$ | 15. $4x^2 - y$ | |

Chapter 2:

- | | | | |
|--------------|-----------------|-------------|--------------|
| 16. $x = -9$ | 17. $x = 4$ | 18. $x = 1$ | 19. $x = -1$ |
| 20. $x = 5$ | 21. $x = 21$ | 22. $x = 3$ | 23. $x = 7$ |
| 24. $x > -3$ | 25. $y \leq -5$ | | |



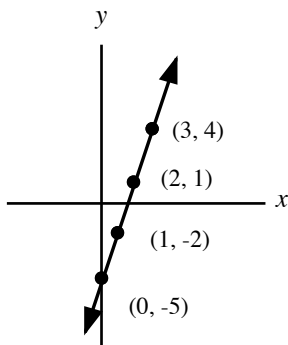
Chapter 3:

Note: the answers for #26-29 could possibly be written in a different correct form than shown here.

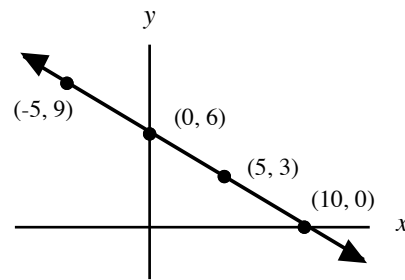
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|------------------------|---|
| 26. $P = \frac{I}{rt}$ | 27. $r = \frac{A - P}{P}$ or $r = \frac{A}{P} - 1$ |
| 28. $m = x - Zd$ | 29. $y = \frac{c - ax}{b}$ or $y = \frac{-ax + c}{b}$ |
30. Veronica will receive \$59,000 and Jorge will receive \$44,000.
31. The length is 24 inches and the width is 17 inches.
32. The smallest angle measures 24° and the middle angle is 54° .

Chapter 4:

33.



34.



35. $m = -\frac{5}{3}$

36. $m = \frac{3}{2}$

37. $y = \frac{8}{3}x + 8$

38. $y = -\frac{3}{2}x - 9$

39. $y = -3x + 7$

40. $y = \frac{5}{6}x + 2$

41. $y = \frac{1}{6}x + 5$

42. $y = \frac{8}{3}x + 14$

43. $2x - y = -8$

44. $4x + 5y = -35$

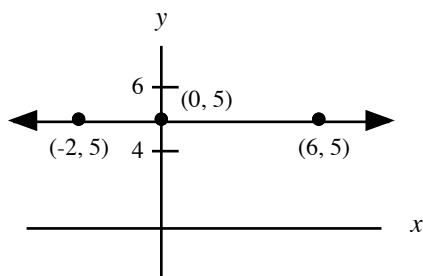
45. $y = -\frac{1}{3}x - 4;$

Slope: $m = -\frac{1}{3}$; y-intercept point: (0, -4)

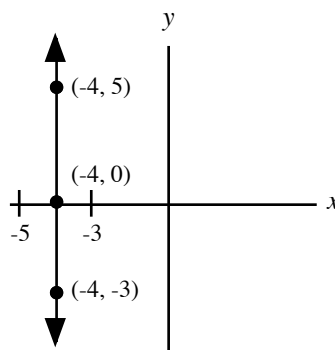
46. $y = \frac{5}{2}x + 3;$

Slope: $m = \frac{5}{2}$; y-intercept point: (0, 3)

47.



48.



Chapter 6:

49. 5

50. $-15y^5$

51. $16x^6y^{10}$

52. $\frac{1}{16}$

53. $\frac{121}{4}$

54. $\frac{w^4}{16x^4}$

55. $\frac{1}{p}$

56. $\frac{1}{h^{13}}$

57. $\frac{1}{x^4}$

58. y^6

59. 5.09×10^6

60. 9.13×10^{-3}

61. 7,410

62. 0.000283

63. 2.43×10^5

64. 1.14×10^{-2}

65. 2.0×10^{-5}

66. 1.5×10^4