Sharyland ISD
Study Guide

Math Models
Semester 1

Student Name: _____

Student ID: _____

MMA Midterm Review

Multiple Choice
Identify the choice that best completes the statement or answers the question.

____ 1. Choose the equation of a line that has slope of $\frac{2}{3}$ and passes through $(-2,-4)$.

a. $y = \frac{2}{3}x - \frac{8}{3}$
b. $y = \frac{2}{3}x - \frac{16}{3}$
c. $y = \frac{3}{2}x - \frac{8}{3}$
d. $y = \frac{3}{2}x - \frac{16}{3}$
e. None correct

Numeric Response

Solve.

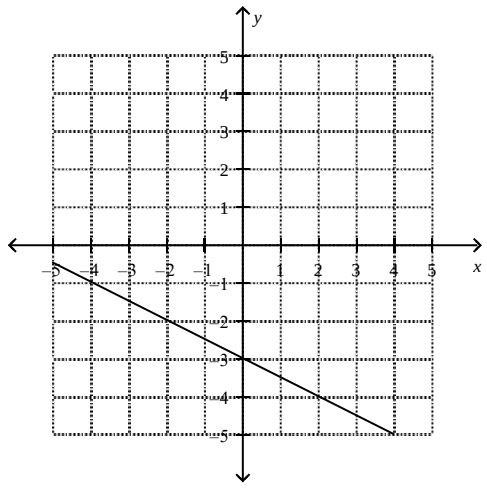
2. What is the slope of a line that contains the points (8, 8) and (–6, 2)?

Short Answer

3. Graph the equation $y = 5x - 4$ and tell whether it is linear.

Find the slope of the line.

4.



What are the slope and *y*-intercept of the graph of the given equation?

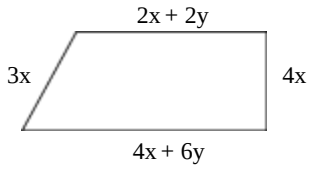
5. $y = –4x + 2$

6. Simplify $9z + 7 + 7z + 5$.

7. Simplify $8t^3 + 10y + 4t^3 - 6y - t^2$.

8. Simplify $-6b^2c - 6bc^4 - 3b^2c + 4 - 2bc^4$.

9. Write an expression for the perimeter of the figure. Then simplify the expression.



10. Solve $\frac{z}{3} = 6$.

11. If $-3(x + 4) = x + 8$, then x equals

12. Solve $4q = 52$.

13. Solve $9b = -18$.

14. Solve $30 = 14 - 2z$.

15. Ralph is an electrician. He charges an initial fee of $48, plus $35 per hour. If Ralph earned $118 on a job, how long did the job take?

16. Solve $y - 21.1 = 13.7$.

17. Solve $10t - 4t = 66$.

18. Solve $23a + 12 - 21a = 16$.

19. Solve $3(a + 5) + 3 = 15$.

20. Solve $3(5 - 5x - 5x) + 8(3x + 8) = 19$.

21. Norma earns 1.5 times her normal hourly pay for each hour that she works over 40 hours in a week. Her normal pay is $7.70 per hour. Last week Norma earned $331.10. How many hours did she work last week?

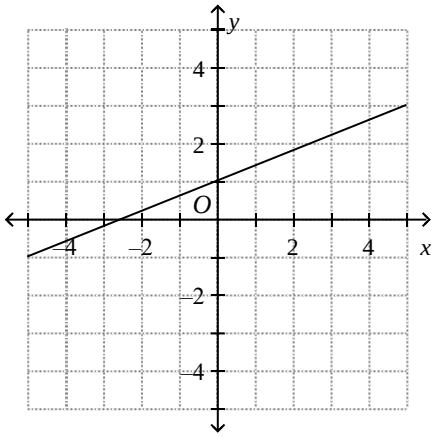
22. Solve.
$2c - 66 = 8c$

23. Solve $28p - 30 = 61p - 96$.

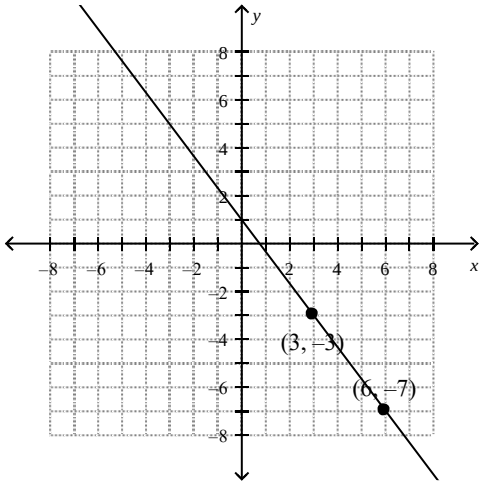
24. An amusement park has two types of season passes. Plan 1 charges a one-time fee of $175.00 for admission plus $9.00 every trip for parking. Plan 2 charges a one-time fee of $145.00 for parking plus $14.00 every trip for admission. For what number of trips is the cost of these plans the same?

25. What is the *y*-intercept for $4x - 2y = -2$?

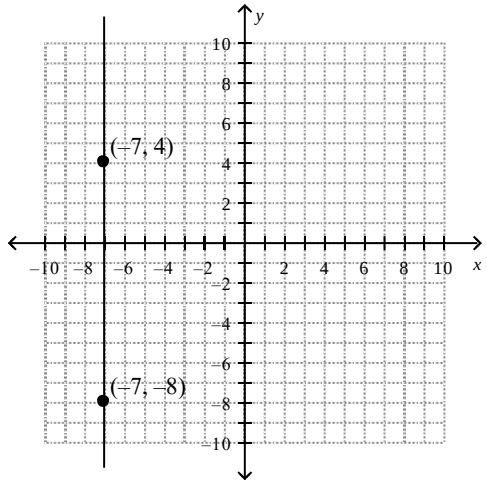
26. What is the slope of the line in the graph?



27. Tell whether the slope is positive or negative. Then find the slope.



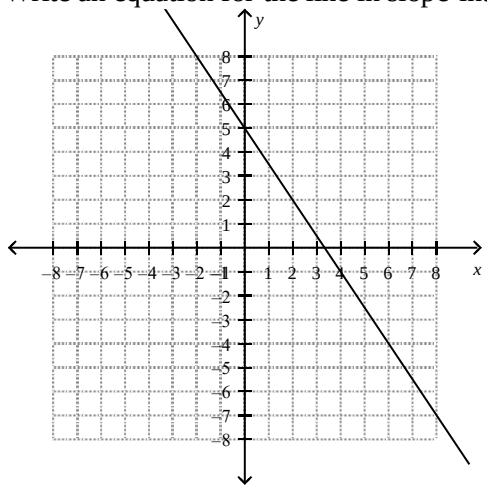
28. Find the slope of the line.



29. Write the equation $3x + 5y = -30$ in slope-intercept form, and then find the slope and *y*-intercept.

30. Write the equation $-5x - 10y = -30$ in slope-intercept form. Then graph the line described by the equation.

31. Write an equation for the line in slope-intercept form.



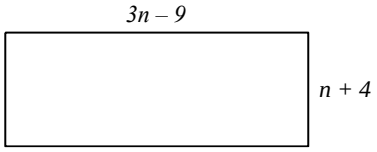
32. Write an equation in point-slope form for the line that has a slope of $\frac{6}{7}$ and passes through the point (–2, 4).

33. Write an equation in slope-intercept form for the line that passes through (8, 4) and (5, 9).

34. A remote-control airplane descends at a rate of 5 feet per second. After 4 seconds it is 116 feet above the ground. Write the equation in point-slope form that models the situation. Then, find the height of the plane after 6 seconds.

35. What is the equation of a line that passes through (–3, 4) and (1, 9)?

36. Express the perimeter of the following rectangle in terms of *n*.



37. Simplify $m^2n + 7xy + 6nm^2 - yx$.

38. Solve $2x - (x + 2) + 2 = 14$.

39. Find the *x*- and *y*-intercepts of $-x + 3y = 9$.

40. Graph $y = -2x - 2$.

MMA Midterm Review
Answer Section

MULTIPLE CHOICE

1. ANS: A PTS: 1
   REF: Lesson 52: Determining the Equation of a Line Given Two Points
   NAT: NCTM A.4 TOP: End-of-Course Exam MSC: Alg1_S06_00050

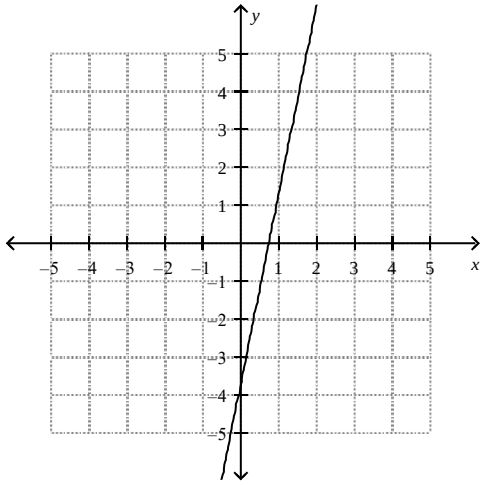
NUMERIC RESPONSE

2. ANS: 3/7

   PTS: 1 REF: Lesson 44: Finding Slope Using the Slope Formula
   NAT: NCTM A.4 TOP: Benchmark Test 3 MSC: Alg1_S05_00058

SHORT ANSWER

3. ANS:



   linear

   PTS: 1 REF: Lesson 30: Graphing Functions NAT: NCTM A.1b
   MSC: Alg1_S03_00055
4. ANS:
   $-\frac{1}{2}$

   PTS: 1 DIF: L3 REF: 3-1 Rate of Change and Slope
   OBJ: 3-1.2 To find slope STA: (2)(G)| (3)(A)| (3)(B)
   TOP: 3-1 Problem 3 Finding Slope Using a Graph KEY: slope
5. ANS:
   The slope is –4 and the *y*-intercept is 2.

PTS: 1 DIF: L2 REF: 3-3 Slope-Intercept Form
OBJ: 3-3.1 To write linear equations using slope-intercept form STA: (2)(B)| (2)(C)| (3)(A)| (3)(B)| (3)(C)
TOP: 3-3 Problem 1 Identifying Slope and y-intercept
KEY: linear equation | y-intercept | slope-intercept form

6. ANS:
$16z + 12$

PTS: 1 REF: Lesson 18: Combining Like Terms NAT: NCTM A.2a
MSC: Alg1_S02_00033

7. ANS:
$12t^3 + 4y - t^2$

PTS: 1 REF: Lesson 18: Combining Like Terms NAT: NCTM A.2a
MSC: Alg1_S02_00034

8. ANS:
$-9b^2c - 8bc^4 + 4$

PTS: 1 REF: Lesson 18: Combining Like Terms NAT: NCTM A.2a
MSC: Alg1_S02_00035

9. ANS:
$13x + 8y$

PTS: 1 REF: Lesson 18: Combining Like Terms NAT: NCTM A.2a
MSC: Alg1_S02_00036

10. ANS:
$z = 18$

PTS: 1 REF: Lesson 21: Solving One-Step Equations by Multiplying or Dividing
NAT: NCTM A.2b TOP: Benchmark Test 2 MSC: Alg1_S03_00002

11. ANS:
-5

PTS: 1 REF: Lesson 28: Solving Equations with Variables on Both Sides
NAT: NCTM A.2b TOP: End-of-Course Exam MSC: Alg1_S03_00009

12. ANS:
$q = 13$

PTS: 1 REF: Lesson 21: Solving One-Step Equations by Multiplying or Dividing
NAT: NCTM A.2b MSC: Alg1_S03_00016

13. ANS:
$b = -2$

PTS: 1 REF: Lesson 21: Solving One-Step Equations by Multiplying or Dividing
NAT: NCTM A.2b MSC: Alg1_S03_00017

14. ANS:
$z = -8$

PTS: 1 REF: Lesson 23: Solving Two-Step Equations
NAT: NCTM A.2b MSC: Alg1_S03_00025

15. ANS:
2 hours

PTS: 1 REF: Lesson 23: Solving Two-Step Equations
NAT: NCTM NO.3a MSC: Alg1_S03_00027

16. ANS:
$y = 34.8$

PTS: 1 REF: Lesson 24: Solving Decimal Equations
NAT: NCTM A.2b MSC: Alg1_S03_00028

17. ANS:
$t = 11$

PTS: 1 REF: Lesson 26: Solving Multi-Step Equations
NAT: NCTM NO.3a MSC: Alg1_S03_00036

18. ANS:
$a = 2$

PTS: 1 REF: Lesson 26: Solving Multi-Step Equations
NAT: NCTM NO.3a MSC: Alg1_S03_00037

19. ANS:
$a = -1$

PTS: 1 REF: Lesson 26: Solving Multi-Step Equations
NAT: NCTM NO.3a MSC: Alg1_S03_00038

20. ANS:
$x = 10$

PTS: 1 REF: Lesson 26: Solving Multi-Step Equations
NAT: NCTM NO.3a MSC: Alg1_S03_00039

21. ANS:
42 hours

PTS: 1 REF: Lesson 26: Solving Multi-Step Equations
NAT: NCTM NO.3a MSC: Alg1_S03_00040

22. ANS:
$c = -11$

PTS: 1 REF: Lesson 28: Solving Equations with Variables on Both Sides
NAT: NCTM A.2b MSC: Alg1_S03_00044

23. ANS:
$p = 2$

PTS: 1 REF: Lesson 28: Solving Equations with Variables on Both Sides
NAT: NCTM A.2b MSC: Alg1_S03_00045

24. ANS:
6 trips

PTS: 1 REF: Lesson 28: Solving Equations with Variables on Both Sides
NAT: NCTM A.2b MSC: Alg1_S03_00048

25. ANS:
$y = 1$

PTS: 1 REF: Lesson 35: Locating and Using Intercepts
NAT: NCTM A.1c TOP: End-of-Course Exam MSC: Alg1_S04_00008

26. ANS:
$\frac{2}{5}$

PTS: 1 REF: Lesson 41: Finding Rates of Change and Slope
NAT: NCTM A.4 TOP: End-of-Course Exam MSC: Alg1_S05_00001

27. ANS:
negative; $-\frac{4}{3}$

PTS: 1 REF: Lesson 41: Finding Rates of Change and Slope
NAT: NCTM A.4 MSC: Alg1_S05_00012

28. ANS:
undefined

PTS: 1 REF: Lesson 44: Finding Slope Using the Slope Formula
NAT: NCTM A.4 MSC: Alg1_S05_00027

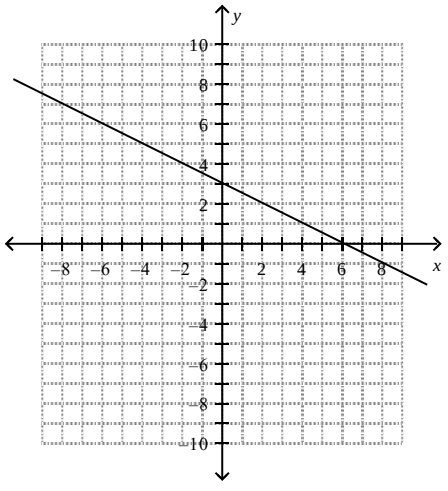
29. ANS:
slope-intercept form: $y = -\frac{3}{5}x - 6$

slope: $-\frac{3}{5}$

y-intercept: -6

PTS: 1 REF: Lesson 49: Writing Equations in Slope-Intercept Form
NAT: NCTM A.4 MSC: Alg1_S05_00043

30. ANS:
$y = -\frac{1}{2}x + 3$



PTS: 1 REF: Lesson 49: Writing Equations in Slope-Intercept Form
NAT: NCTM A.4 MSC: Alg1_S05_00044

31. ANS:
$f(x) = -\frac{3}{2}x + 5$

PTS: 1 REF: Lesson 49: Writing Equations in Slope-Intercept Form
NAT: NCTM A.4 MSC: Alg1_S05_00046

32. ANS:
$y - 4 = \frac{6}{7}(x + 2)$

PTS: 1 REF: Lesson 52: Determining the Equation of a Line Given Two Points
NAT: NCTM A.4 MSC: Alg1_S06_00007

33. ANS:
$y = -\frac{5}{3}x + \frac{52}{3}$

PTS: 1 REF: Lesson 52: Determining the Equation of a Line Given Two Points
NAT: NCTM A.4 MSC: Alg1_S06_00008

34. ANS:
$y - 116 = -5(x - 4)$; 106 feet

PTS: 1 REF: Lesson 52: Determining the Equation of a Line Given Two Points
NAT: NCTM A.4 MSC: Alg1_S06_00009

35. ANS:
$y = \frac{5}{4}x + \frac{31}{4}$

PTS: 1 REF: Lesson 52: Determining the Equation of a Line Given Two Points
NAT: NCTM A.2b TOP: Benchmark Test 4 MSC: Alg1_S06_00051

36. ANS:
$8n - 10$

PTS: 1 REF: Lesson 18: Combining Like Terms NAT: NCTM G.4d
TOP: Benchmark Test 1 MSC: Alg1_S02_00062

37. ANS:
$7m^2n + 6xy$

PTS: 1 REF: Lesson 18: Combining Like Terms NAT: NCTM A.2a
TOP: Benchmark Test 2 MSC: Alg1_S02_00063

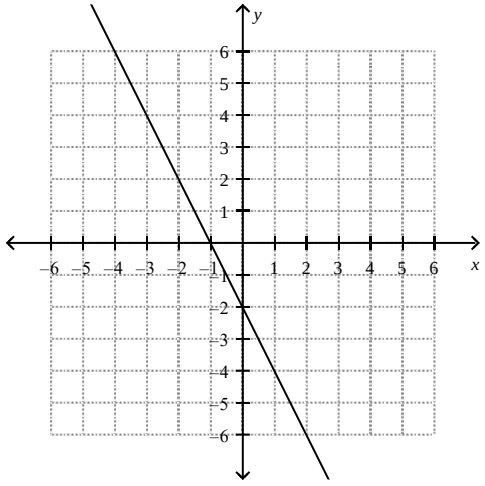
38. ANS:
$x = 14$

PTS: 1 REF: Lesson 26: Solving Multi-Step Equations
NAT: NCTM A.2b TOP: Benchmark Test 3 MSC: Alg1_S03_00008

39. ANS:
x-intercept: –9, y-intercept: 3

PTS: 1 REF: Lesson 35: Locating and Using Intercepts
NAT: NCTM A.1c MSC: Alg1_S04_00030

40. ANS:



PTS: 1 REF: Lesson 49: Writing Equations in Slope-Intercept Form
NAT: NCTM A.4 MSC: Alg1_S05_00045