

Mid-Course Test**Form G**.....
Chapters 1–6**Simplify each expression.**

1. $22[5^2 \div (4^2 + 3^2) + 9]$

2. $-2\frac{1}{3} - 4\frac{5}{6}$

3. $(-6)^3(-3)$

4. Solve the proportion. $\frac{16}{9} = \frac{42}{x}$

5. The ratio of the number of right-handed students in school to the number of left-handed students in school is 9 : 1. There are 360 right-handed students in school. How many left-handed students are in school?

Evaluate the algebraic expression when $a = 3$, $b = 4.9$, and $c = -5$.

6. $a^2 - b$

7. $c^2 + 4ab$

Solve each equation or inequality.

8. $3x + 9 = 24$

9. $8(x - 5) = -40$

10. $-\frac{5}{6}y - 5 \geq 30$

11. $-5 < 2d - 1 < 3$

12. Graph the real number solutions of $2x + 4 \geq 16$.

13. Solve and graph the inequality $|x + 3| \geq 7$.

14. Write a function rule to describe the amount of change $c(x)$ from a \$20 bill if you buy x pounds of grapes at \$1.29 per pound.

15. What is the range of $y = x^2 - 5$ when the domain is $\{-1, 0, 3.5\}$?

16. Solve. $\frac{2}{5}n + 4 = -3\left(\frac{3}{4}n - 2\right)$

17. Is $(6, 3)$ a solution of $2y - 9 \geq 4(x - 8)$? Explain why or why not.

18. Tell whether the following system has *one solution*, *infinitely many solutions*, or *no solution*.

$$\frac{x}{4} + \frac{y}{9} = 27$$

$$\frac{3x}{2} + \frac{2y}{3} = 19$$

Mid-Course Test (continued)

Form G

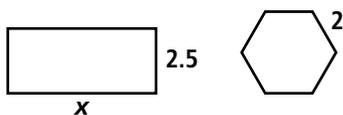
Chapters 1–6

Write an equation or inequality to model each situation. Then solve.

19. Mike withdrew \$32 from his bank account at an ATM machine. The transaction slip said his balance was \$289.14. What was his previous balance?

20. After you put 8 gallons of gas into an empty tank, the gas gauge reads $\frac{2}{3}$ full. What is the capacity of the tank?

21. The perimeter for the rectangle and regular hexagon below are equal. Find x .



22. Fair tickets for 2 adults and 3 children cost \$34. An adult ticket costs \$2 more than a child ticket. What is the price of an adult ticket?

23. What is the greatest number of \$0.25 gumballs you can buy with \$2.20?

Solve.

24. 12 is what percent of 37.5?

25. 82% of 350 is what number?

26. A package delivery company handles 14 million packages per year in the Midwest. If this represents only 35% of their total business how many total packages do they handle in a year?

Find the slope of the line passing through each pair of points.

27. $(-3, 4)$ and $(6, 1)$

28. $(4, 16)$ and $(0, 8)$

Write the equation of the line for each of the following conditions.

29. through two points $(2, 4)$ and $(4, 7)$

30. a horizontal line passing through the point $(6, 18)$

31. parallel to the line $y = \frac{4}{9}x + 5$ through point $(-2, 1)$

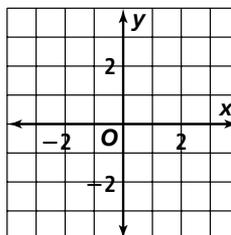
32. Write the equation of the direct variation that includes the point $(-6, 2)$

Write an expression for each phrase.

33. the quantity two times d minus five times the quantity six times d plus four

34. fifteen less than six times the square of x

35. Use the slope and y-intercept to graph the equation $y = \frac{1}{2}x + 2$.



Mid-Course Test (continued)

Form G

Chapters 1–6

- 36.** Write an equation in standard form that passes through the given points.

$(3, 5), (8, -3)$

Solve.

- 37.** Using the formula $C = \frac{5}{9}(F - 32)$, find the Fahrenheit temperature when the Celsius temperature is 45° .
- 38.** Mr. Smith expects to pay \$19,400 in taxes. This is no more than $\frac{1}{3}$ of his salary. What is his least possible earned income?

- 39.** Which property is illustrated?
 $6(12 - 3) = 6(12) - 6(3)$

- 40.** Which employee has the highest hourly rate? Keep in mind that they do not get paid for lunch.

	Total Hours Worked	Lunch Hour	Pay Before Taxes
Scott	42.5	3.5	\$645.60
Mike	38.75	2.75	\$629.70
Todd	40.5	3.25	\$641.25
Jason	41.25	4.0	\$647.50

- 41.** Solve the following system.

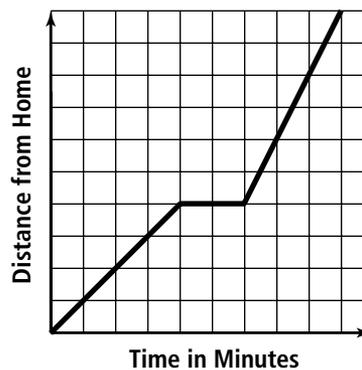
$$3x + 2y = 18$$

$$y = -\frac{2}{3}x + 12$$

- 42.** Given $A = \{1, 2, 3, 4, 5\}$ and $B = \{2, 4, 6, 8, 10\}$, what is $A \cap B$?

- 43.** Luis leaves home riding his bike. The graph below relates two quantities—distance from home and time in minutes—of Luis’s trip.

Use the graph to write your own summary of Luis’s trip. Be sure to include descriptions of Luis’s relative speed during different intervals of the trip, as modeled by the graph.



- 44.** What is the solution of $|-2x + 5| < 60$?

Mid-Course Test (continued)

Form G

Chapters 1–6

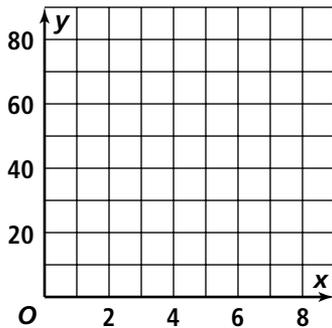
45. Joe started a new job in 2001. His salary was \$32,600. At the beginning of the next year he will receive a raise of \$1560. Assume he will receive the same raise every year.
- Write a function rule for finding Joe’s salary after 2001.
 - Find Joe’s salary in 2007.

48. Write a function rule for the table of values.

x	y
-1	-3.5
0	0
1	3.5
2	7

46. A boy 4 ft tall casts a shadow 6 ft long. He stands next to a monument that has a 52 ft long shadow. How tall is the monument?
47. You start a pet-sitting service. You spend \$35 on advertising. You plan to charge \$5 a day to watch each pet.
- Write an equation to relate your daily income y to the number of pets x you watch.
 - Graph the equation. What are the x - and y -intercepts?

49. Suppose you receive an e-mail file that contains an image that is 25% larger than the original image. By what percent decrease would you need to reduce the image size to return it to its original size?
50. Describe how you can tell whether two lines are parallel, perpendicular, or neither without graphing them.



- How many days do you need to watch a pet to pay for advertising?