



وزارة التربية والتعليم
MINISTRY OF EDUCATION

السنة 2025-2026
الأكاديمي

MATH GRADE 9GEN EOT TERM1

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Part 1

السنة 2025-2026
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1) Solve equations by using addition and subtraction

PAG 81 Q (1-15)

Lesson 2-2

Solving One-Step Equations

Solve each equation.

1. $v - 9 = 14$

2. $44 = t - 72$

3. $-61 = d + (-18)$

4. $18 + z = 40$

5. $-4a = 48$

6. $12t = -132$

7. $18 - (-f) = 91$

8. $-16 - (-t) = -45$

9. $\frac{1}{3}v = -5$

10. $\frac{u}{8} = -4$

11. $\frac{a}{6} = -9$

12. $-\frac{k}{5} = \frac{7}{5}$

13. $\frac{3}{4} = w + \frac{2}{5}$

14. $-\frac{1}{2} + a = \frac{5}{8}$

15. $-\frac{t}{7} = \frac{1}{15}$

2) Solve equations involving more than one operation

PAG 88 Q (1-12)

Lesson 2-3

Solving Multi-Step Equations

Use properties of equality to solve each equation. Check your solution.

1. $3t + 7 = -8$

2. $8 = 16 + 8n$

3. $-34 = 6m - 4$

4. $9x + 27 = -72$

5. $\frac{y}{5} - 6 = 8$

6. $\frac{f}{-7} - 8 = 2$

7. $1 + \frac{r}{9} = 4$

8. $\frac{k}{3} + 4 = -16$

9. $\frac{n-2}{7} = 2$

10. $14 = \frac{6+z}{-2}$

11. $-11 = \frac{a-5}{6}$

12. $\frac{22-w}{3} = -7$

3) Use the Distributive Property to simplify expressions

PAG 43 Q (39 - 53)

Lesson 1-4

Distributive Property

Simplify each expression. If not possible, write *simplified*.

39. $13r + 5r$

40. $3x^3 - 2x^2$

41. $7m + 7 - 5m$

42. $5z^2 + 3z + 8z^2$

43. $7m + 2m + 5p + 4m$

44. $6x + 4y + 5x$

45. $3m + 5g + 6g + 11m$

46. $4a + 5a^2 + 2a^2 + a^2$

47. $5k + 3k^3 + 7k + 9k^3$

48. $6x^2 + 14x - 9x$

49. $17g + g$

50. $2x^2 + 6x^2$

51. $7a^2 - 2a^2$

52. $3y^2 - 2y + 9$

53. $3q^2 + q - q^2$

4) Prove that equations are identities or have no solution

PAG 98 Q (25-30)

Lesson 2-4

Solving Equations with the Variable on Each Side

Solve each equation and state whether the equation has *one solution*, *no solution*, or is an *identity*.

25. $-6y - 3 = 3 - 6y$

26. $\frac{1}{2}(x + 6) = \frac{1}{2}x - 9$

27. $8q + 12 = 4(3 + 2q)$

28. $21(x + 1) - 6x = 15x + 21$

29. $12y + 48 - 4y = 8(y - 6)$

30. $8(z + 6) = 4(2z + 12)$

5) Evaluate numerical expressions by using the order of operations

PAG 10 Q (30-41)

Lesson 1-1

Numerical Expressions

Evaluate each expression.

30. 7^2

31. 14^3

32. 2^6

33. $35 - 3 \cdot 8$

34. $18 \div 9 + 2 \cdot 6$

35. $10 + 8^3 \div 16$

36. $[(6^3 - 9) \div 23]4$

37. $\frac{8 + 3^3}{12 - 7}$

38. $\frac{(1 + 6)9}{5^2 - 4}$

39. $4(16 \div 2 + 6)$

40. $13 - \frac{1}{3}(11 - 5)$

41. $(5 \cdot 2 - 9) + 2 \cdot \frac{1}{2}$

6) Rewrite linear equations in slope-intercept form

PAG 235 Q (1-8)

Lesson 4-3

Slope-Intercept Form

Write an equation of a line in slope-intercept form with the given slope and y-intercept.

1. slope: 5, y-intercept: -3

2. slope: -2 , y-intercept: 7

3. slope: -6 , y-intercept: -2

4. slope: 7, y-intercept: 1

5. slope: 3, y-intercept: 2

6. slope: -4 , y-intercept: -9

7. slope: 1, y-intercept: -12

8. slope: 0, y-intercept: 8

7) Construct arithmetic sequences

PAG 255 Q (9-18)

Lesson 4-5

Arithmetic Sequences

Find the common difference of each arithmetic sequence. Then find the next three terms.

9. 0.02, 1.08, 2.14, 3.2, ...

10. 6, 12, 18, 24, ...

11. 21, 19, 17, 15, ...

12. $-\frac{1}{2}$, 0, $\frac{1}{2}$, 1, ...

13. $2\frac{1}{3}$, $2\frac{2}{3}$, 3, $3\frac{1}{3}$, ...

14. $\frac{7}{12}$, $1\frac{1}{3}$, $2\frac{1}{12}$, $2\frac{5}{6}$, ...

15. 3, 7, 11, 15, ...

16. 22, 19.5, 17, 14.5, ...

17. -13 , -11 , -9 , -7 , ...

18. -2 , -5 , -8 , -11 , ...

8) Construct arithmetic sequences

PAG 255 Q (1-15)

Lesson 4-5

Arithmetic Sequences

ARGUMENTS Determine whether each sequence is an arithmetic sequence. Justify your reasoning.

1. $-3, 1, 5, 9, \dots$

2. $\frac{1}{2}, \frac{3}{4}, \frac{5}{8}, \frac{7}{16}, \dots$

3. $-10, -7, -4, 1, \dots$

4. $-12.3, -9.7, -7.1, -4.5, \dots$

5. $4, 7, 9, 12, \dots$

6. $15, 13, 11, 9, \dots$

7. $7, 10, 13, 16, \dots$

8. $-6, -5, -3, -1, \dots$

9) Recognize the properties of equality and identity

PAG 31 Q (1-8)

Lesson 1-3

Properties of Real Numbers

Identify the property of equality used to justify each statement.

1. If $4 + 17 = 21$, then $21 = 4 + 17$.

2. $x + 3 = x + 3$

3. If $16 = 9 + 7$, then $9 + 7 = 16$.

4. If $6 + 2 = 4 + 4$ and $4 + 4 = 8$, then $6 + 2 = 8$.

Use the given property of equality to complete each statement.

5. If $23 + 14 = 37$, then $37 = 23 + \underline{\quad? \quad}$; Symmetric Property of Equality

6. If $a + 5 = b + 3$ and $a + 5 = 12$, then $b + 3 = \underline{\quad? \quad}$; Transitive Property of Equality

7. If $34 = 19 + 15$, then $19 + 15 = \underline{\quad? \quad}$; Symmetric Property of Equality

8. $b + 5 + 12 = \underline{\quad? \quad}$; Reflexive Property of Equality

10) Solve proportions**PAG 113 Q (4-15)**

Lesson 2-6

Solving Proportions

Solve each proportion. If necessary, round to the nearest hundredth.

4. $\frac{15}{35} = \frac{g}{7}$

5. $\frac{7}{10} = \frac{m}{14}$

6. $\frac{8}{13} = \frac{v}{21}$

7. $\frac{w}{2} = \frac{4.5}{6.8}$

8. $\frac{1}{0.19} = \frac{12}{n}$

9. $\frac{2}{0.21} = \frac{8}{n}$

10. $\frac{2.4}{3.6} = \frac{k}{1.8}$

11. $\frac{t}{0.3} = \frac{1.7}{0.9}$

12. $\frac{7}{1.066} = \frac{z}{9.65}$

13. $\frac{x-3}{5} = \frac{6}{10}$

14. $\frac{7}{x+9} = \frac{21}{36}$

15. $\frac{10}{15} = \frac{4}{x-5}$

11) Solve equations with the variable on each side**PAG 97 Q (1-10)**

Lesson 2-4

Solving Equations with the Variable on Each Side

Solve each equation. Check your solution.

1. $7c + 12 = -4c + 78$

2. $2m - 13 = -8m + 27$

3. $9x - 4 = 2x + 3$

4. $6 + 3t = 8t - 14$

5. $\frac{b-4}{6} = \frac{b}{2}$

6. $\frac{3v+12}{6} = \frac{4v}{3}$

7. $2(r+6) = 4(r+4)$

8. $6(n+5) = 3(n+16)$

9. $5(g+8) - 7 = 117 - g$

10. $12 - \frac{4}{5}(x+15) = \left(\frac{2}{5}x + 6\right)$

12) Translate sentences into equations

PAG 71 Q (9-14)

Lesson 2-1

Writing and Interpreting Equations

Write an equation for each sentence.

- Two added to three times a number m is the same as 18.
- The product of five and the sum of a number x and three is twelve.
- The quotient of 24 and x equals 14 minus 2 times x .
- Nine times a number y subtracted from 85 is seven times the sum of four and y .
- WALKING** Lily has walked 2 miles. Her goal is to walk 6 miles. Lily plans to reach her goal by walking 3 miles each hour h for the rest of her walk. Write an equation to find the number of hours it will take Lily to reach her goal.
- MATH** Paulina has completed 24 of the 42 math problems she was assigned for homework. She plans to finish her homework by completing 9 math problems each hour h . Write an equation to find the number of hours it will take Paulina to complete her math homework assignment.
- ATHLETICS** Of 107 athletes surveyed about what sport they play, some play basketball. Of those that play basketball, 48 play baseball and the remaining 33 do not play baseball. Write an equation to find the number of athletes surveyed who do not play basketball.
- SALES** Cars and trucks are the most popular vehicles. Last year, the number of cars sold was 39,000 more than three times the number of trucks sold. There were 216,000 cars sold last year. Write an equation that can be used to find the number of trucks, t , sold last year.
- Twice a increased by the cube of a equals b .
- Seven less than the sum of p and t is as much as 6.
- The sum of x and its square is equal to y times z .
- Four times the sum of f and g is identical to six times g .
- The area A of a square is the length of a side ℓ squared.
- The perimeter P of a triangle is equal to the sum of the lengths of sides a , b , and c .

13) Solve proportions

PAG 114 Q (40-43)

Solving Proportions

- 40. SHOPPING** Stevenson's Market is selling 3 packs of stylus pens for \$5.00. How much will 10 packs of stylus pens cost at this price?
- 41. STATE YOUR ASSUMPTION** During basketball practice, Brent made 36 free throws in 3 minutes.
- a. How many free throws will Brent make in 5 minutes?
 - b. What assumption did you make in part a? Explain.
- 42. NAILS** Human fingernails grow at an average rate of 3.47 millimeters per month. How much will they grow in 20 months?
- 43. PICTURE** Jasmine enlarged the size of a picture to a height of 15 inches. What is the new width of the picture if it was originally 6 inches wide by 4 inches tall?

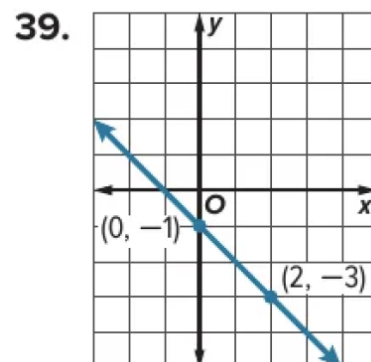
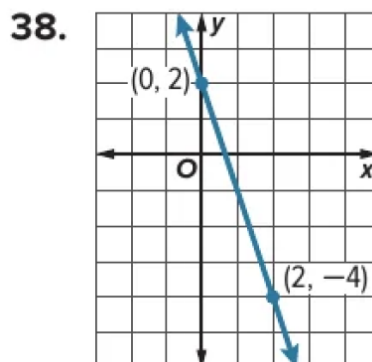
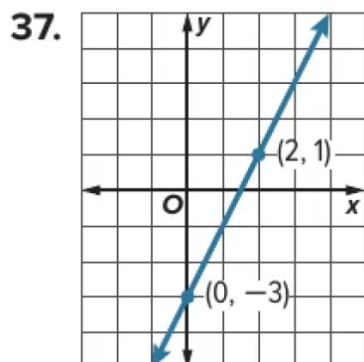
14) Graph and interpret linear functions.

PAG 236 Q (37-39)

Lesson 4-3

Slope-Intercept Form

Write an equation in slope-intercept form for each graph shown.



15) Apply translations to linear functions

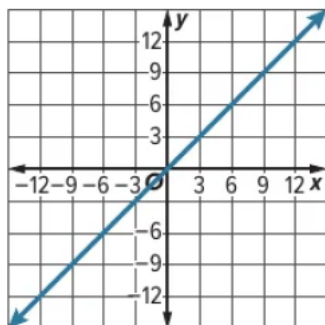
PAG 247 Q (1-6)

Lesson 4-4

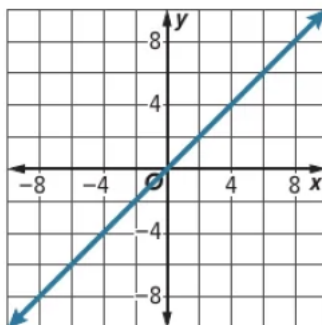
Transformations of Linear Functions

Describe the translation in each function as it relates to the graph of the parent function.

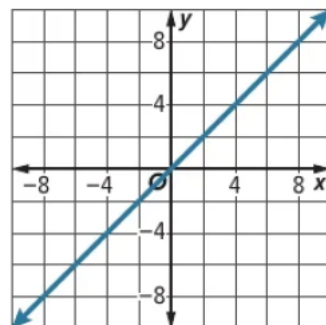
1. $g(x) = x + 11$



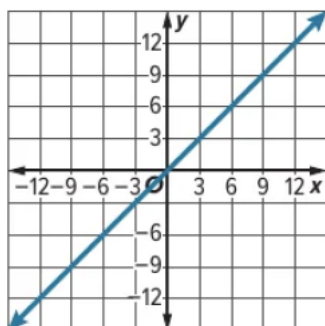
2. $g(x) = x - 8$



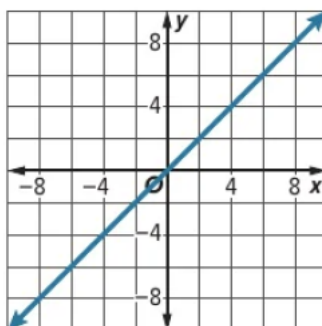
3. $g(x) = (x - 7)$



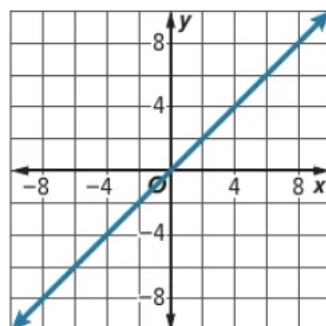
4. $g(x) = (x + 12)$



5. $g(x) = (x + 10) - 1$



6. $g(x) = (x - 9) + 5$



16) Write verbal expressions for algebraic expressions

PAG 18 Q (22-35)

Lesson 1-2

Algebraic Expressions

Write an algebraic expression for each verbal expression.

22. x more than 7

23. a number less 35

24. 5 times a number

25. one third of a number

26. f divided by 10

27. the quotient of 45 and r

28. three times a number plus 16

29. 18 decreased by 3 times d

30. k squared minus 11

31. 20 divided by t to the fifth power

32. the sum of a number and 10

33. 15 less than the sum of k and 2

34. the product of 18 and q

35. 6 more than twice m

17) Use the Distributive Property to evaluate expressions

PAG 42 Q (23-30)

Lesson 1-4

Distributive Property

Rewrite each expression using the Distributive Property. Then simplify.

23. $2(x + 4)$

24. $(5 + n)3$

25. $(4 - 3m)8$

26. $-3(2x - 6)$

27. $(2 - 4n)17$

28. $11(4d + 6)$

29. $\left(\frac{1}{3} - 2b\right)27$

30. $4(8p + 16q - 7r)$

18) Calculate and interpret slope

Lesson 4-2

PAG 226 Q (11-20)**Rate of Change and Slope****Find the slope of the line that passes through each pair of points.**

11. $(4, 3), (-1, 6)$

12. $(8, -2), (1, 1)$

13. $(2, 2), (-2, -2)$

14. $(6, -10), (6, 14)$

15. $(5, -4), (9, -4)$

16. $(11, 7), (-6, 2)$

17. $(-3, 5), (3, 6)$

18. $(-3, 2), (7, 2)$

19. $(8, 10), (-4, -6)$

20. $(-12, 15), (18, -13)$

21. $(-8, 6), (-8, 4)$

22. $(-8, -15), (-2, 5)$

19) Identify and graph step functions

Lesson 4-6

PAG 265 Q (18a-d)**Piecewise and Step Functions****18. STRUCTURE** Suppose $f(x) = 2\llbracket x - 1 \rrbracket$.

a. Find $f(1.5)$.

b. Find $f(2.2)$.

c. Find $f(9.7)$.

d. Find $f(-1.25)$.

20) Solve equations by using multiplication and division

PAG 81 Q (43-54)

Lesson 2-2

Solving One-Step Equations

Solve each equation.

43. $12z = 108$

44. $-7t = 49$

45. $18f = -216$

46. $-22 = 11v$

47. $-6d = -42$

48. $96 = -24a$

49. $\frac{c}{4} = 16$

50. $\frac{a}{16} = 9$

51. $-84 = \frac{d}{3}$

52. $-\frac{d}{7} = -13$

53. $\frac{t}{4} = -13$

54. $31 = -\frac{1}{6}n$



Part 2

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21) Evaluate algebraic expressions by using the order of operations

Pag 19 Q(42-53)

Lesson 1-2

Algebraic Expressions

Evaluate each expression if $g = 2$, $r = 3$, and $t = 11$.

42. $g + 6t$

43. $7 - gr$

44. $r^2 + (g^3 - 8)^5$

45. $(2t + 3g) \div 4$

46. $t^2 + 8rt + r^2$

47. $3g(g + r)^2 - 1$

Evaluate each expression if $a = 8$, $b = 4$, and $c = 16$.

48. $a^2bc - b^2$

49. $\frac{c^2}{b^2} + \frac{b^2}{a^2}$

50. $\frac{2b + 3c^2}{4a^2 - 2b}$

51. $\frac{3ab + c^2}{a}$

52. $\left(\frac{a}{b}\right)^2 - \frac{c}{a - b}$

53. $\frac{2a - b^2}{ab} + \frac{c - a}{b^2}$

19. **RECTANGLES** The formula $p = 2l + 2w$ represents the perimeter of a rectangle. In this formula, l is the length of the rectangle and w is the width.

- Solve the formula for l .
- Find the length when the width is 4 meters and the perimeter is 36 meters.

20. **BASEBALL** The formula $a = \frac{h}{b}$ can be used to find the batting average a of a batter who has h hits in b times at bat.

- Solve the formula for b .
- If a batter has a batting average of 0.325 and has 39 hits, how many times has the player been at bat?

21. **SHOPPING** Thomas went to the store to buy videogames for \$13.50 each and controllers. The total amount Thomas spent can be represented by $c = 13.50g + p$, where c is the total cost, g is the number of games he bought, and p is the cost of the controllers. The controllers cost \$55 and Thomas spent \$136 total.

- Solve the equation for g .
- Find how many games Thomas bought.

22. **GEOMETRY** The volume of a box V is given by the formula $V = lwh$, where l is the length, w is the width, and h is the height.

- Solve the formula for h .
- What is the height of a box with a volume of 50 cubic meters, length of 10 meters, and width of 2 meters?

23) Solve equations by applying the Distributive Property

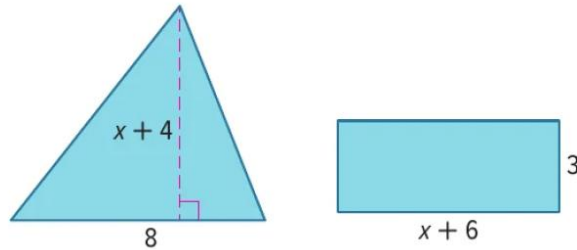
Pag 98 Q(21-24)

Lesson 2-4

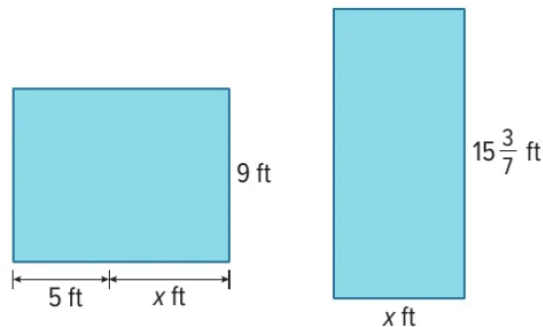
Solving Equations with the Variable on Each Side

- 21. GEOMETRY** Supplementary angles are two angles with measures that have a sum of 180° . Complementary angles are two angles with measures that have a sum of 90° . The measure of the supplement of an angle is 10° more than twice the measure of the complement of the angle. Let $90 - x$ equal the degree measure of the complement angle and $180 - x$ equal the degree measure of the supplement angle. Write and solve an equation to find the measure of the angle.

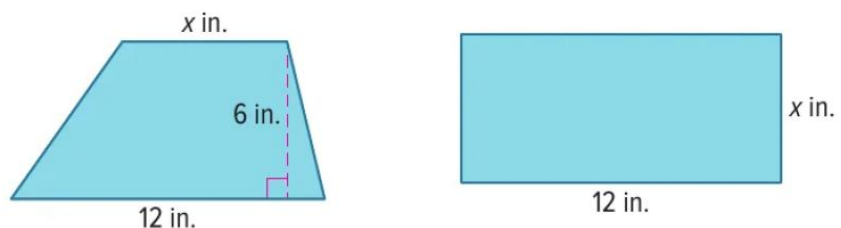
- 22. GEOMETRY** Write and solve an equation to find the value of x so that the figures have the same area.



- 23. GEOMETRY** Write and solve an equation to find the value of x so that the figures have the same area.



- 24. GEOMETRY** Write and solve an equation to find the value of x so that the figures have the same area. The area of a trapezoid is $\frac{1}{2}h(b_1 + b_2)$.



24) Graph linear functions by using the x- and y-intercepts

Pag 216 Q(9-14)

Lesson 4-1

Graphing Linear Functions

Graph each equation by using the x-and y-intercepts.

9) $y = 4 + 2x$

10) $5 - y = -3x$

11) $x = 5y + 5$

12) $x + y = 4$

13) $x - y = -3$

14) $y = 8 - 6x$

25) Calculate and interpret rate of change.

Pag 225 Q(3-6)

Lesson 4-2

Rate of Change and Slope

3. **POPULATION DENSITY** The table shows the population density for the state of Texas in various years. Find the average annual rate of change in the population density from 2000 to 2009.

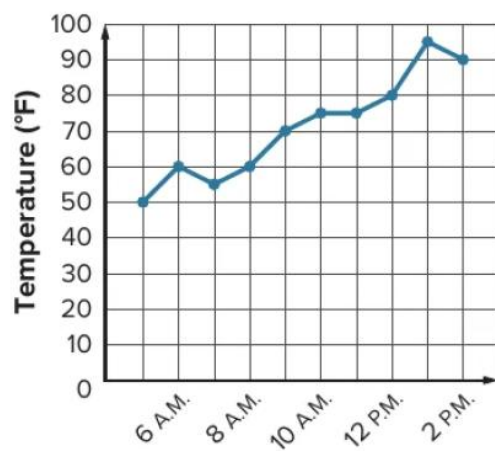
4. **BAND** In 2012, there were approximately 275 students in the Delaware High School band. In 2018, that number increased to 305. Find the annual rate of change in the number of students in the band.

Population Density	
Year	People Per Square Mile
1930	22.1
1960	36.4
1980	54.3
2000	79.6
2009	96.7

Source: Bureau of the Census,
U.S. Dept. of Commerce

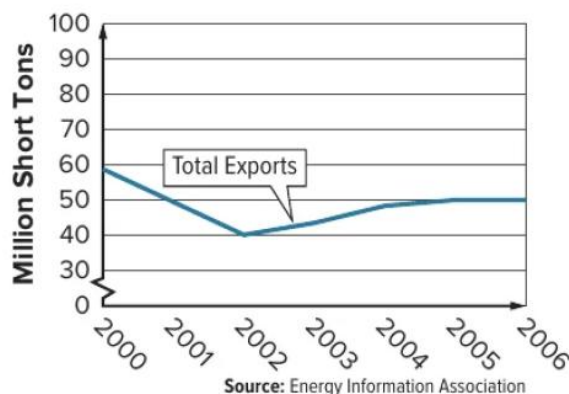
5. **TEMPERATURE** The graph shows the temperature in a city during different hours of one day.

- Find the rate of change in temperature between 6 A.M. and 7 A.M. and describe its meaning in the context of the situation.
- Find the rate of change in temperature from 1 P.M. and 2 P.M. and describe its meaning in the context of the situation.



6. **COAL EXPORTS** The graph shows the annual coal exports from U.S. mines in millions of short tons.

- Find the rate of change in coal exports between 2000 and 2002 and describe its meaning in the context of the situation.
- Find the rate of change in coal exports between 2005 and 2006 and describe its meaning in the context of the situation.



Source: Energy Information Association