Chapter Test
8 *Form A*

Select the best answer.

1. Which equation is best represented
by the statement "*x* varies jointly with
y and *z*"?

A $x = kyz$ **B** $x = \dfrac{k}{yz}$

2. *P* varies inversely with *Q*, and $P = 12$
when $Q = 8$. Find *P* when $Q = 3$.

A 2

B 4.5

C 32

D 96

3. Based on the data set, which statement
is true?

A	10	3	15
B	5	8	10
C	3	16	4

A *A* varies jointly with *B* and *C*.

B *B* varies jointly with *A* and *C*.

C *C* varies jointly with *A* and *B*.

D *C* varies directly with *A* and
inversely with *B*.

4. Simplify $\dfrac{6x - 18}{x^2 - 4} \times \dfrac{x^2 + 5x + 6}{x^2 - 9}$.

A $\dfrac{6}{x - 2}$

B $\dfrac{6x + 12}{x^2 - x - 6}$

5. Find the solution set for the equation
$\dfrac{x^2 - 6x + 8}{x - 2} = 5$.

A {9}

B {2, 9}

6. Simplify $\dfrac{1}{1 - x} + \dfrac{x}{x - 1}$.

A $x + 1$ **C** $\dfrac{x + 1}{1 - x}$

B $\dfrac{x + 1}{x - 1}$ **D** $\dfrac{x + 1}{(x - 1)^2}$

7. Which of the following is
equal to $\dfrac{x}{1 - \dfrac{1}{x}}$?

A $\dfrac{x - 1}{x}$ **C** $\dfrac{x - 1}{x^2}$

B $\dfrac{x}{x - 1}$ **D** $\dfrac{x^2}{x - 1}$

8. Ted walks from his home to the post
office at an average rate of 3 miles per
hour. He then walks back at an average
rate of 5 miles per hour. What is his
average rate for the entire trip?

A $3.\overline{6}$ mph

B 3.75 mph

C 4 mph

D $4.\overline{3}$ mph

9. Which function is continuous?

A $A(x) = \dfrac{x}{1 + x^2}$

B $B(x) = \dfrac{x}{1 + x^3}$

10. Identify all asymptotes of $f(x) = \dfrac{3x - 12}{x + 2}$.

A vertical asymptote: $x = -2$;
horizontal asymptote: $y = 3$

B vertical asymptote: $x = -2$;
horizontal asymptote: $y = 4$

11. Which function has a hole in its graph?

A $A(x) = \dfrac{x^2 - 4x + 4}{x^2 - 4}$

B $B(x) = \dfrac{x^2 + 4x - 4}{x^2 - 4}$

C $B(x) = \dfrac{x^2 - 4x + 4}{x^2 + 4}$

D $B(x) = \dfrac{x^2 + 4x - 4}{x^2 + 4}$

Holt Algebra 2

| CHAPTER | **Chapter Test** |
| **8** | **Form A** continued |

12. Which of the following could be the equation for the graph?
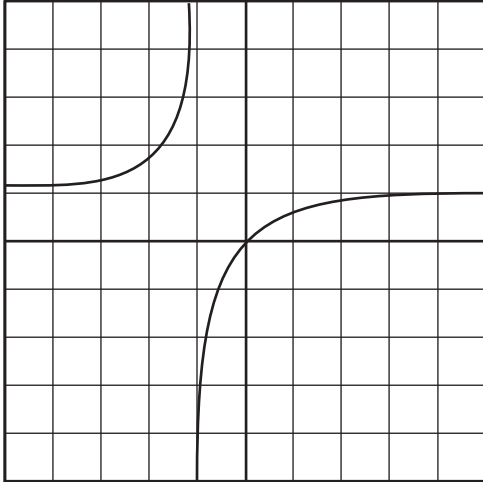
A $a(x) = \dfrac{x + 2}{x - 2}$

B $b(x) = \dfrac{x - 2}{x + 2}$

C $c(x) = \dfrac{2x + 1}{x - 2}$

D $d(x) = \dfrac{2x + 1}{x + 2}$

13. How many solutions are there to the equation $\dfrac{2}{x + 1} + \dfrac{4}{x^2 - 1} = 1$?

A 0

B 1

C 2

D an infinite number

14. Working alone, Machine A can produce 1000 widgets in 6 hours. Working alone, Machine B can produce 1000 widgets in 9 hours. How long will it take the two machines to produce the 1000 widgets if they are both used at the same time?

A 3 hours and 36 minutes

B 3 hours and 45 minutes

15. Which expression is equal to $\dfrac{\sqrt{xy^3}}{xy}$?

A $x^{\frac{-1}{2}}y^{\frac{1}{2}}$

B $x^{\frac{3}{2}}y^{\frac{5}{2}}$

16. Which is equal to 10?

A $(\sqrt{10})(\sqrt[3]{10})(\sqrt[6]{10})$

B $(\sqrt{10})(\sqrt[4]{10})(\sqrt[8]{10})$

17. Which could be the equation for the graph?
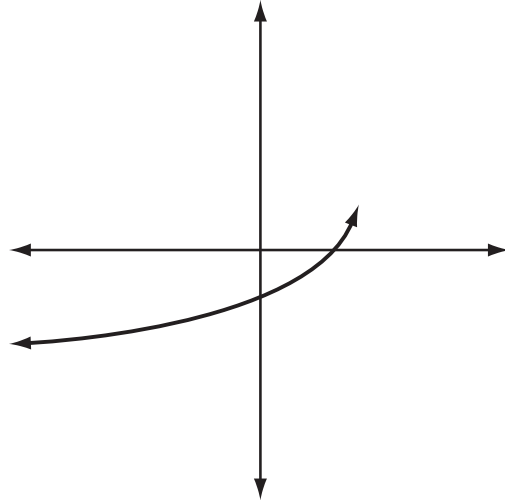
A $a(x) = \sqrt{x - 5} - 2$

B $b(x) = \sqrt{5 - x} - 2$

C $c(x) = -\sqrt{x - 5} - 2$

D $d(x) = -\sqrt{5 - x} - 2$

18. Solve $\sqrt{5x - 2} = 2\sqrt{2x - 5}$.

A $x = -8$

B $x = 6$

19. Which is an extraneous solution to $\sqrt{3x + 1} = x - 3$?

A $x = 1$

B $x = 5$

C $x = 8$

D There is no extraneous solution.

20. What is the solution set to the equation $x - 3 = (5x - 1)^{\frac{1}{2}}$?

A {10}

B {1, 10}

Holt Algebra 2

CHAPTER

8

Chapter Test
Form B

Select the best answer.

1. Which equation is best represented by the statement "x varies directly with y and inversely with the square of z"?

  A $x = \dfrac{ky}{z^2}$ **C** $x = \dfrac{kx^2}{y}$

  B $x = \dfrac{y}{z^2}$ **D** $x = \dfrac{z^2}{y}$

2. P varies directly with Q and inversely with R, and $P = 12$ when $Q = 8$ and $R = 6$. Find P when $Q = 3$ and $R = 4$.

  F 3   **H** 9

  G 6.75   **J** 16

3. Based on the data set, which statement is true?

A	12	18	32
B	9	18	12
C	3	4	1.5

  A A varies jointly with B and C.

  B A varies directly with B and inversely with C.

  C C varies directly with A and inversely with B.

  D C varies jointly with A and B.

4. Simplify $\dfrac{x^2 + 3x - 10}{x^2 - 2x - 15} \div \dfrac{x^2 + x - 6}{x^2 + 6x + 9}$.

  F $\dfrac{x + 5}{x - 5}$ **H** $\dfrac{x^2 + 8x + 15}{x^2 - 7x + 10}$

  G $\dfrac{x + 3}{x - 3}$ **J** $\dfrac{(x - 2)^2(x + 5)}{(x + 3)^2(x - 5)}$

5. Find the solution set for the equation

  $\dfrac{3 - x}{x^2 - 9} = -3$.

  A $\left\{-\dfrac{10}{3}\right\}$ **C** $\left\{\dfrac{8}{3}\right\}$

  B $\left\{-\dfrac{8}{3}\right\}$ **D** $\left\{\dfrac{10}{3}\right\}$

6. Simplify $\dfrac{1}{1 - x} + \dfrac{x}{x^2 - 1}$.

  F $\dfrac{-1}{x^2 - 1}$

  G $\dfrac{1}{x^2 - 1}$

  H $\dfrac{2x + 1}{x^2 - x}$

  J $\dfrac{x + 1}{-x^2 + x^2 + x - 1}$

7. Which of the following is equal to $\dfrac{1 + \frac{1}{x}}{1 - \frac{1}{x}}$?

  A $\dfrac{x + 1}{x - 1}$ **C** $\dfrac{x^2 - 1}{x}$

  B $\dfrac{x - 1}{x + 1}$ **D** $\dfrac{x^2 - 1}{x^2}$

8. Ted walks from his home to the post office at an average rate of 3 miles per hour. He then runs back at an average rate of 7 miles per hour. What is his average rate for the entire trip?

  F 4.2 mph   **H** 5 mph

  G $4.\overline{6}$ mph   **J** $5.\overline{3}$ mph

9. Which function is continuous?

  A $A(x) = \dfrac{1}{1 - x}$ **C** $C(x) = \dfrac{x}{1 + x^2}$

  B $B(x) = \dfrac{1}{1 - x^2}$ **D** $D(x) = \dfrac{x}{1 + x^3}$

10. Identify all asymptotes of

  $f(x) = \dfrac{x^2 + 3x - 4}{2x^2 - 3x - 2}$.

  F vertical asymptotes: $x = -\dfrac{1}{2}$ and $x = 2$; horizontal asymptote: $y = \dfrac{1}{2}$

  G vertical asymptotes: $x = -\dfrac{1}{2}$ and $x = 2$; horizontal asymptotes: $y = 1$ and $y = -4$

  H vertical asymptotes: $x = \dfrac{1}{2}$ and $x = -2$; horizontal asymptote: $y = \dfrac{1}{2}$

  J vertical asymptotes: $x = \dfrac{1}{2}$ and $x = 2$; horizontal asymptote: $y = 1$ and $y = -4$

Holt Algebra 2

CHAPTER	**Chapter Test**
8	*Form B* continued

11. Which function has a hole in its graph at $(2, 4)$?
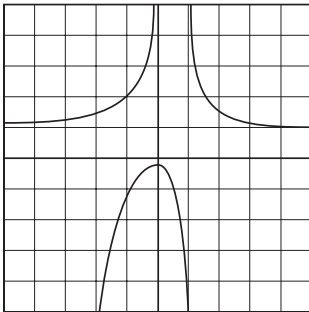
A $A(x) = \dfrac{x^2 - 4x + 4}{x^2 - 4}$

B $B(x) = \dfrac{x^2 + 4x + 4}{x^2 - 4}$

C $C(x) = \dfrac{x^2 - 5x + 4}{x^2 - 3x + 2}$

D $D(x) = \dfrac{x^2 - 4}{x^2 - 3x + 2}$

12. Which of the following could be the equation for the graph?

F $f(x) = \dfrac{x + 6}{x^2 + 2x - 8}$

G $g(x) = \dfrac{x - 6}{x^2 - 2x - 8}$

H $h(x) = \dfrac{2x^2 + x - 16}{x^2 - 2x - 8}$

J $j(x) = \dfrac{2x^2 + x + 6}{x^2 + 2x - 8}$

13. What is the sum of all the solutions of the equation $\dfrac{2}{x} + \dfrac{4}{x + 1} = 9$?

A $-\dfrac{1}{3}$ **C** $\dfrac{1}{3}$

B 0 **D** 1

14. Working alone, Eric can paint a room in 9 hours. Eric and Matt working together can paint the room in 4 hours. How long will it take Matt to paint the room working alone?

F 6 hours and 30 minutes

G 7 hours

H 7 hours and 12 minutes

J 7 hours and 20 minutes

15. Which expression is equal to $\dfrac{\sqrt{xy^3}}{\sqrt[4]{x^3y}}$?

A $x^{\frac{5}{4}}y^{\frac{3}{4}}$ **C** $\dfrac{y^{\frac{5}{4}}}{x^{\frac{1}{4}}}$

B $x^{\frac{5}{4}}y^{\frac{7}{4}}$ **D** $x^{\frac{1}{4}}y^{\frac{5}{4}}$

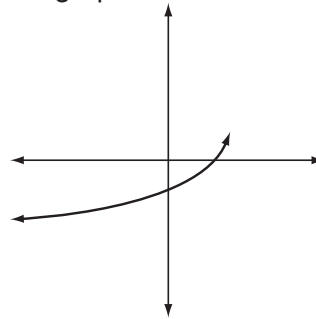**16.** Which is equal to an integer?

F $\sqrt[3]{9}(\sqrt[3]{243})$

G $\sqrt{27}(\sqrt[3]{81})$

H $\sqrt[3]{81}(\sqrt[4]{243})$

J $\sqrt[4]{27}(\sqrt[4]{243})$

17. Which could be the equation for the graph?

A $f(x) = -\sqrt{2 - x} + 1$

B $f(x) = \sqrt{2 - x} + 1$

C $f(x) = -\sqrt{x - 2} + 1$

D $f(x) = -\sqrt{-(x + 2)} + 1$

18. Solve $\sqrt{3x + 3} = 6\sqrt{x - 10}$.

F 11 **H** 21

G 16 **J** no solution

19. Which is an extraneous solution to $\sqrt{6x + 1} = 2x - 3$?

A $x = -4$

B $x = \dfrac{1}{2}$

C $x = 4$

D There is no extraneous solution.

20. What is the solution set to the equation $x - 2 = (3x + 4)^{\frac{1}{2}}$?

F $\{-3\}$ **H** $\{7\}$

G $\{0, 3\}$ **J** $\{0, 7\}$

Holt Algebra 2

Name _____ Date _____ Class _____

Select the best answer.

1. If x varies directly with y and inversely with z, which of the following statements is true?

   A y varies jointly with x and z.

   B z varies jointly with x and y.

   C y varies directly with x and inversely with z.

   D z varies directly with x and inversely with y.

2. P varies directly with Q and inversely with R, and $P = 3$ when $Q = 8$ and $R = 6$. Find Q when $P = 0.5$ and $R = 4$.

   F $\dfrac{9}{16}$ **H** $\dfrac{9}{4}$

   G $\dfrac{8}{9}$ **J** $\dfrac{9}{2}$

3. Based on the data set, which statement is true?

A	0.6	0.12	1
B	12	6	0.5
C	8	10	0.2

   A A varies jointly with B and C.

   B A varies directly with B and inversely with C.

   C C varies directly with A and inversely with B.

   D C varies jointly with A and B.

4. Simplify $\dfrac{1 - x^2}{x^2 + x + 1} \div \dfrac{x^2 - 2x + 1}{x^3 - 1}$.

   F $x + 1$ **H** $\dfrac{(x - 1)^2}{x + 1}$

   G $-(x + 1)$ **J** $-\dfrac{(x - 1)^2}{x + 1}$

5. Find the sum of the solutions to the equation $\dfrac{x^3 - 8}{2 - x} = -7$.

   A -3 **C** 0

   B -2 **D** 1

6. Simplify $\dfrac{x + 1}{1 - x} + \dfrac{x^2}{x^2 - 1}$.

   F $\dfrac{-2x - 1}{x^2 - 1}$ **H** $\dfrac{2x^2 - 2x - 1}{1 - x^2}$

   G $\dfrac{2x^2 + 2x + 1}{x^2 - 1}$ **J** $\dfrac{-2x^2 - 2x - 1}{x^3 + x^2 - x - 1}$

7. Which of the following is equal to $\dfrac{x - \dfrac{1}{x}}{1 - \dfrac{1}{x^2}}$?

   A x **C** $\dfrac{x}{x^2 - 1}$

   B $\dfrac{1}{x}$ **D** $\dfrac{x^2 - 1}{x}$

8. Ted walks from his home to the post office at an average rate of 3 miles per hour. He then runs back at an average rate of x miles per hour. Find x if his average for the entire trip is 4.5 mph.

   F 6 mph   **H** 7.5 mph

   G 7 mph   **J** 9 mph

9. Which function is continuous?

   A $A(x) = \dfrac{1}{x + 1}$

   B $B(x) = \dfrac{1}{x^2 + x + 1}$

   C $C(x) = \dfrac{x}{x^2 + 2x + 1}$

   D $D(x) = \dfrac{x}{x^3 + 2x^2 + 3x + 1}$

10. Identify all asymptotes of $f(x) = \dfrac{2x^2 - 7x + 3}{3x^2 - 5x - 12}$.

    F vertical asymptote: $x = -\dfrac{4}{3}$; horizontal asymptote: $y = \dfrac{2}{3}$

    G vertical asymptote: $x = -\dfrac{4}{3}$; horizontal asymptotes: $y = \dfrac{1}{2}$ and $y = 3$

    H vertical asymptotes: $x = -\dfrac{4}{3}$ and $x = 3$; horizontal asymptote: $y = \dfrac{2}{3}$

    J vertical asymptotes: $x = -\dfrac{4}{3}$ and $x = 3$; horizontal asymptotes: $y = \dfrac{1}{2}$ and $y = 3$

Holt Algebra 2

CHAPTER	**Chapter Test**
8	***Form C*** continued

11. Which function has a hole in its graph at $(2, -1)$?
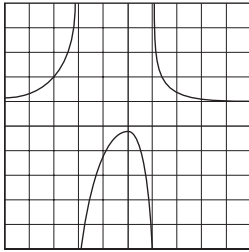
A $A(x) = \dfrac{x^2 - 4x + 4}{x^2 - 4}$

B $B(x) = \dfrac{2 - x}{x^2 - 4}$

C $C(x) = \dfrac{x^2 - 9}{x^2 + x - 6}$

D $D(x) = \dfrac{x^2 - 9x + 14}{x^2 + x - 6}$

12. Which of the following could be the equation for the graph?

F $f(x) = \dfrac{2x - 2}{x^2 + 2x - 8}$

G $g(x) = \dfrac{2x^2 + x - 6}{x^2 + 2x - 8}$

H $h(x) = \dfrac{-2x^2 + x + 6}{x^2 + 2x - 8}$

J $j(x) = \dfrac{2x^2 + x + 6}{x^2 + 2x - 8}$

13. What is the sum of all the solutions of the equation $\dfrac{x - 1}{x + 1} + \dfrac{4}{x - 1} = \dfrac{5}{2}$?

A 0   **C** $\dfrac{4}{3}$

B $\dfrac{2}{3}$ **D** 2

14. Working alone, Eric can paint a room in 8 hours. Eric and Matt working together can paint the room in 4 hours and 48 minutes. How long will it take Matt to paint the room working alone?

F 10 hours   **H** 12 hours

G 11.2 hours   **J** 13.2 hours

15. Which expression is equal to $\dfrac{\sqrt{xy^3z^5}}{\sqrt[4]{x^5y^3z}}$?

A $x^{\frac{-1}{2}}y^{\frac{1}{2}}z^2$ **C** $x^{\frac{7}{4}}y^{\frac{9}{4}}z^{\frac{11}{4}}$

B $x^{\frac{-3}{4}}y^{\frac{3}{4}}z^{\frac{9}{4}}$ **D** $x^{\frac{1}{4}}y^{\frac{3}{4}}z^{\frac{5}{4}}$
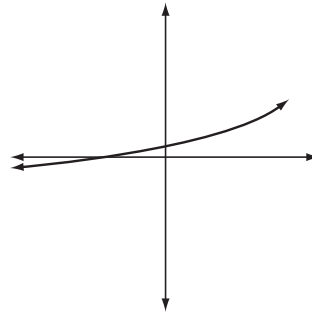
16. Which is equal to an integer?

F $(\sqrt{8})(\sqrt[3]{16})(\sqrt[6]{2})$

G $(\sqrt[4]{8})(\sqrt[3]{16})(\sqrt{2})$

H $(\sqrt{8})(\sqrt[4]{32})(\sqrt[3]{2})$

J $(\sqrt[4]{8})(\sqrt[6]{32})(\sqrt[3]{2})$

17. Which could be the equation for the graph?

A $a(x) = -\sqrt{2 - x} + 1$

B $b(x) = \sqrt{2 - x} + 1$

C $c(x) = -\sqrt{6 - x} + 3$

D $d(x) = \sqrt{6 - x} + 3$

18. Which equation has no real solution?

F $\sqrt{2x + 1} = 2\sqrt{x + 3}$

G $\sqrt{4x + 1} = 2\sqrt{x + 3}$

H $\sqrt{4x + 12} = 2\sqrt{x + 3}$

J $\sqrt{4x + 1} = \sqrt{2x + 3}$

19. Which is an extraneous solution to $\sqrt{3x - 1} = 3x - 7$?

A $x = \dfrac{5}{3}$

B $x = \dfrac{10}{3}$

C $x = \dfrac{5}{3}$ and $x = \dfrac{10}{3}$ are both extraneous solutions.

D There is no extraneous solution.

20. What is the solution set to the equation $(6x - 1)^{\frac{1}{3}} = (2x + 1)^{\frac{1}{2}}$?

F $\varnothing$ **H** $\{1.5\}$

G $\{0\}$ **J** $\{0, 1.5\}$

Holt Algebra 2

Name _____ Date _____ Class _____

1. Write an equation that represents the statement "*P* varies directly with *Q* and inversely with *T*."

_____

2. *P* varies directly with *Q* and inversely with *R*, and *P* = 18 when *Q* = 6 and *R* = 2. Find *P* when *Q* = 20 and *R* = 10.

_____

3. Based on the data set, how does *A* vary with *B* and *C*?

A	60	64	48
B	5	2	3
C	3	8	4

_____

4. Simplify $\dfrac{x^2 - 16}{x^2 - 6x + 8} \times \dfrac{5x - 10}{3x + 12}$.

_____

5. Find the solution set for the equation $\dfrac{4x^2 - 25}{2x - 5} = 14$.

_____

6. Simplify $\dfrac{2}{x + 3} + \dfrac{3}{x^2 + 7x + 12}$.

_____

7. Simplify $\dfrac{x - 2}{x - \frac{4}{x}}$.

_____

8. Carol drives her daughter to school at an average rate of 30 miles per hour, but only goes an average rate of 20 miles per hour on the way home because of traffic. What is her average rate for the entire round trip?

_____

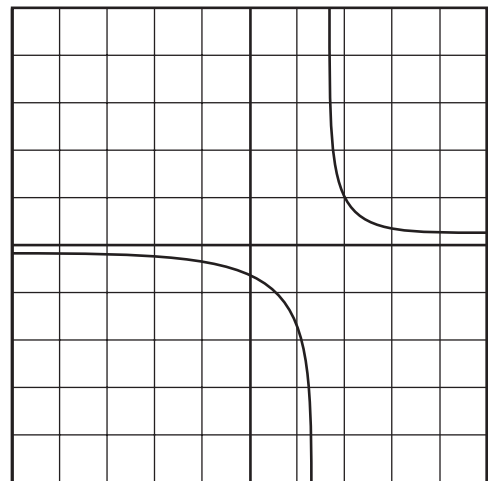9. If $f(x) = \dfrac{1}{x^2 - a}$ is a continuous function, what must be true of *a*?

_____

10. Identify all asymptotes of $f(x) = \dfrac{x - 2}{x^2 - 9}$.

_____

11. At what point does the function $f(x) = \dfrac{x + 2}{x^2 + 5x + 6}$ have a hole?

_____

12. The graph below has a vertical asymptote at *x* = 3, a horizontal asymptote at *y* = 0, and passes through the point (4, 2). What could be the function of this graph?

_____

13. Find the solution set for the equation $\dfrac{3}{x + 1} + \dfrac{10}{x^2 + 2x + 1} = 1$.

_____

Holt Algebra 2

Chapter Test

Form A continued

14. Pipe A can fill a pool in 8 hours. Pipe B can fill the pool in 4 hours. How long will it take Pipes A and B to fill the pool if they are both used?

_____

15. Simplify $\left(\sqrt{xy^3}\right)\left(\sqrt[3]{x^2y}\right)$ and express with rational exponents.

_____

16. Simplify $\left(\sqrt[3]{4}\right)\left(\sqrt[6]{4}\right)$.

_____

17. If $f(x) = \sqrt{x} - 1$ is transformed by translating it 2 units up, and then reflecting it over the x-axis, what will the resulting function be?

_____

18. Solve $\sqrt{6x + 5} = \sqrt{41 - 2x}$.

_____

19. Find the solution set to $\sqrt{3x - 3} = 2x - 5$.

_____

20. Solve the equation $2x - 4 = (6 - 2x)^{\frac{1}{2}}$.

_____

Holt Algebra 2

Chapter Test
Form B

1. Write an equation that represents the statement "P varies directly with Q and inversely with the product of R and T."

_____

2. P varies directly with Q and inversely with R, and $P = 10$ when $Q = 5$ and $R = 6$. Find P when $Q = 6$ and $R = 4$.

_____

3. Based on the data set, how does A vary with B and C?

A	9	6	12
B	5	20	15
C	3	8	12

_____

4. Simplify

$$\frac{x^2 - 9x - 36}{x^2 - 3x - 18} \div \frac{2x^2 - 21x - 36}{2x^2 + 15x + 18}.$$

_____

5. Find the solution set for the equation

$$\frac{x + 2}{x^2 - 4} = \frac{2}{3}.$$

_____

6. Simplify $\dfrac{1}{2 - x} + \dfrac{x + 1}{x^2 - 4}$.

_____

7. Simplify $\dfrac{x - \dfrac{1}{x}}{x + \dfrac{1}{x}}$.

_____

8. Emmett runs once around the school track at an average rate of 8 miles per hour. Then he jogs once around the track at an average rate of 6 miles per hour. What is his average rate for the two laps of the track?
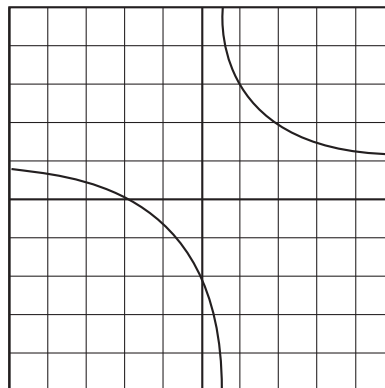
_____

9. If $f(x) = \dfrac{x - a}{x^2 - 6x + a}$ is a continuous function, what must be true of a?

_____

10. Identify all asymptotes of $f(x) = \dfrac{9x^2 - 4}{4x^2 - 9}$.

_____

11. At what point does the function $f(x) = \dfrac{6x - 12}{x^2 - 5x + 6}$ have a hole?

_____

12. The graph below has a vertical asymptote at $x = 1$, a horizontal asymptote at $y = 2$, and an x-intercept at $(-4, 0)$. What could be the function of this graph?

_____

Holt Algebra 2

CHAPTER **8**   **Chapter Test**

Form B continued

13. Find the solution set for the equation
$\dfrac{2}{x} + \dfrac{6}{x+1} = 15.$

_____

14. Inlet pipe #1 can fill a pool in 8 hours. Inlet pipes #1 and #2 together can fill the pool in 6 hours. How long will it take inlet pipe #2 to fill the pool by itself?

_____

15. Simplify $\dfrac{\sqrt{xy^3}\,\sqrt[3]{x^2 y}}{xy}$ and express with rational exponents.

_____

16. Simplify $(\sqrt{8})(\sqrt[6]{8}).$

_____

17. If $f(x) = \sqrt{x} - 1$ is transformed by translating it 2 units to the right, then reflecting it over the *x*-axis, and finally translating it 3 units down, what will the resulting function be?

_____

18. Solve $\sqrt{8x + 3} = 2\sqrt{7x - 3}.$

_____

19. Find the solution set to
$\sqrt{6x - 5} = 2x - 3.$

_____

20. Solve the equation $x - 5 = (4x + 1)^{\frac{1}{2}}.$

_____

Holt Algebra 2

Chapter Test
Form C

1. If P varies jointly with Q and R and inversely with T, how does Q vary with P, R, and T?

_____

2. P varies directly with Q and inversely with R, and $P = \frac{1}{2}$ when $Q = \frac{1}{3}$ and $R = \frac{1}{4}$. Find P when $Q = \frac{1}{5}$ and $R = \frac{1}{6}$.

_____

3. Based on the data set, how does A vary with B and C?

A	2	0.5	1
B	1	0.25	4
C	0.5	8	0.25

_____

4. If $\dfrac{x^2 - 3x - 18}{D} \div \dfrac{x^2 - 4x - 12}{x^2 - 3x - 10} = \dfrac{1}{2}$, what polynomial is D equal to?

_____

5. Find the solution set for the equation $\dfrac{x + 3}{x^2 - 9} = \dfrac{2x - 1}{4x^2 - 1}$.

_____

6. Simplify $\dfrac{1}{1 - x} - \dfrac{1}{1 + x}$.

_____

**7.** Simplify $\dfrac{1 - \dfrac{1}{x + 1}}{1 + \dfrac{1}{x - 1}}$.

_____

8. Emmett walks once around the school track at an average rate of x miles per hour. Then he jogs once around the track at an average rate that is 3 miles per hour faster than his walking rate. If his average rate for the two laps of the track is 8.75 miles per hour, what was his walking rate?

_____

9. If $f(x) = \dfrac{x - a}{2x^2 - 6x - a}$ is a continuous function, what must be true of a?

_____

10. Identify all asymptotes of $f(x) = \dfrac{16 - x^2}{4x^2 - 1}$.

_____

11. At what point does the function $f(x) = \dfrac{x^2 - 1}{x^3 - 1}$ have a hole?

_____

12. The graph below has a vertical asymptote at $x = 1$, a horizontal asymptote at $y = 2$, an x-intercept at $(-4, 0)$, and a hole at $(6, 4)$. What could be the function of this graph?

_____
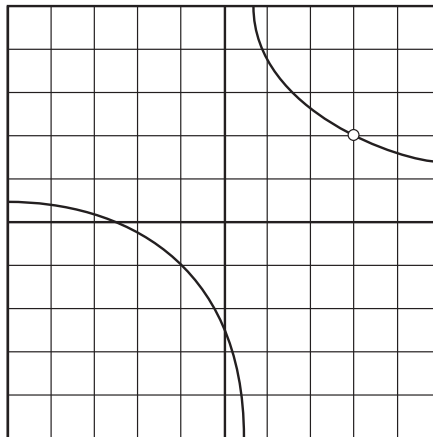
CHAPTER	**Chapter Test**
8	**Form C** continued

13. Find the solution set for the equation

$$\frac{3}{2x} + \frac{1}{3x-4} = \frac{2}{8-x}.$$

_____

14. It takes Printer A, working alone, an hour and a half longer to do a job than it takes Printer B working alone. Together they can do the job in 3 hours and 20 minutes. How long does it take Printer A alone?

_____

15. Simplify $\dfrac{\sqrt{xy^3}}{\sqrt[3]{x^2y}}$ and express with rational exponents.

_____

16. Simplify $\left(\sqrt{2}\right)\left(\sqrt[3]{4}\right)\left(\sqrt[6]{32}\right)$.

_____

17. If $f(x) = \sqrt{x} - 1$ is transformed by translating it 2 units to the right, then stretching it horizontally by a factor of 2, and then finally reflecting it over the y-axis, what will the resulting function be?

_____

18. Find a if the solution to $\sqrt{8x+3} = 2\sqrt{ax-b}$ is the set of all real numbers.

_____

19. Find the solution set to $\sqrt{24-9x} = 2 - 3x.$

_____

20. Solve the equation $(7x-1)^{\frac{1}{3}} = x - 1.$

_____

Holt Algebra 2

Answer Key continued

CHAPTER 8

Section Quiz: Section A

1. A
2. F
3. C
4. F
5. B
6. G
7. D
8. G
9. A

Section Quiz: Section B

1. A
2. G
3. A
4. J
5. C
6. J
7. A
8. G

Chapter Test Form A

1. A
2. C
3. B
4. A
5. A
6. A
7. D
8. B
9. A
10. A
11. A
12. D
13. B
14. A
15. A
16. A
17. B
18. B
19. A
20. A

Chapter Test Form B

1. A
2. G
3. B
4. F
5. C
6. F
7. A
8. F
9. C
10. F
11. D
12. J
13. A
14. H
15. C
16. J
17. A
18. F
19. B
20. H

Chapter Test Form C

1. A
2. G

Holt Algebra 2

Answer Key continued

3. B

4. G

5. B

6. F

7. A

8. J

9. B

10. F

11. D

12. J

13. C

14. H

15. B

16. F

17. C

18. G

19. A

20. H

Chapter Test Form A

1. $P = \dfrac{kQ}{T}$

2. 12

3. A varies jointly with B with C; $A = kBC$

4. $\dfrac{5}{3}$

5. $\{4.5\}$

6. $\dfrac{2x + 11}{x^2 + 7x + 12}$

7. $\dfrac{x}{x + 2}$

8. 24 mph

9. $a < 9$

10. HA at $y = 0$; VA at $x = \pm 3$

11. $(-2, 1)$

12. $f(x) = \dfrac{2}{x - 3}$

13. $\{-3, 4\}$

14. 2 hours and 40 minutes

15. $x^{\frac{7}{6}} y^{\frac{11}{6}}$

16. 4

17. $g(x) = -\sqrt{x} - 1$

18. $x = 4.5$

19. $\{4\}$

20. $x = 2.5$

Chapter Test Form B

1. $P = \dfrac{kQ}{RT}$

2. 18

3. A varies directly with C and inversely with B

4. $\dfrac{x + 6}{x - 6}$

5. $\left\{\dfrac{7}{2}\right\}$

6. $-\dfrac{1}{x^2 - 4}$

7. $\dfrac{x^2 - 1}{x^2 + 1}$

8. 7.5 mph

9. $a > 9$

10. HA at $y = -\dfrac{1}{4}$; VA at $x = \pm\dfrac{1}{2}$

11. $\left(1, \dfrac{2}{3}\right)$

12. $f(x) = \dfrac{2x + 8}{x - 1}$

13. $\left\{-\dfrac{2}{3}, \dfrac{1}{5}\right\}$

14. 24 hours

15. $x^{\frac{1}{6}} y^{\frac{5}{6}}$

16. 2

17. $g(x) = -\sqrt{x - 2} - 2$

18. $x = \dfrac{3}{4}$

19. $\left\{\dfrac{7}{2}\right\}$

20. $x = 12$

Holt Algebra 2

Answer Key

Chapter Test Form C

1. $Q = \dfrac{kPT}{R}$; Q varies jointly with P and T and inversely with R.

2. $\dfrac{9}{20}$ or 0.45

3. $A = \dfrac{k}{BC}$; A varies inversely with the product of B and C.

4. $2x^2 - 4x - 30$

5. $\{-4\}$

6. $\dfrac{2x}{1 - x^2}$

7. $\dfrac{x - 1}{x + 1}$

8. 7.5 mph

9. $a < -5$

10. HA at $y = \dfrac{9}{4}$; VA at $x = \pm\dfrac{3}{2}$

11. $(2, -6)$

12. $f(x) = \dfrac{2x^2 - 4x - 48}{x^2 - 7x + 6}$

13. $\left\{\dfrac{24}{23}, 4\right\}$

14. 6 hours

15. $x^{-\frac{1}{6}} y^{\frac{7}{6}}$

16. 4

17. $g(x) = \sqrt{-\dfrac{1}{2}x - 2} - 1$

18. $a = 2$, $b = -\dfrac{3}{4}$

19. $\left\{-\dfrac{4}{3}\right\}$

20. $\{-1, 4\}$

Performance Assessment

1. $R(x) = \dfrac{}{(x - 3)}$

2. $R(x) = \dfrac{(x - 2)}{(x - 3)(x - 2)}$

3. The numerator and denominator must have the same degree, and the leading coefficient of the numerator must be two times the leading coefficient of the denominator.

4. $R(x) = \dfrac{2(x - a)(x - 2)}{(x - 3)(x - 2)}$

5. For the function $R'(x) = \dfrac{2(x - a)}{(x - 3)}$, $R'(2) = -2$.

6. $\dfrac{2(2 - a)}{(2 - 3)} = -2$; $\dfrac{4 - 2a}{-1} = -2$; $4 - 2a = 2$; $a = 1$.

7. $R(x) = \dfrac{2(x - 1)(x - 2)}{(x - 3)(x - 2)} = \dfrac{2x^2 - 6x + 4}{x^2 - 5x + 6}$

Cumulative Test

1. A
2. G
3. C
4. F
5. C
6. G
7. D
8. J
9. A
10. H
11. C
12. H
13. D
14. H
15. C
16. H
17. B
18. G
19. C
20. F

Holt Algebra 2