

**MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.**

**State the domain of the rational expression.**

- 1)  $\frac{x^2 - 25}{3x^2 - 4x - 7}$  1) \_\_\_\_\_
- A)  $\{x | x \neq -\frac{7}{3}, 1\}$  B)  $\{x | x \neq -5, 5\}$
- C)  $\{x | x \neq -5, -1, \frac{7}{3}, 5\}$  D)  $\{x | x \neq -1, \frac{7}{3}\}$

**Reduce the rational expression to lowest terms.**

- 2)  $\frac{18x - 6}{15x^3 - 5x^2}$  2) \_\_\_\_\_
- A)  $-\frac{6}{5x}$  B)  $\frac{6}{5x^2}$  C)  $\frac{6}{5x}$  D)  $\frac{5}{6x^2}$

**Multiply the rational expression. Express the product as a rational expression in lowest terms.**

- 3)  $\frac{y^2 - 9}{y^2 - 25} \cdot \frac{y^2 + 7y + 10}{y^2 - 8y + 15}$  3) \_\_\_\_\_
- A)  $\frac{(y + 3)(y + 2)}{(y + 5)^2}$  B)  $\frac{(y + 3)(y + 2)}{(y - 5)^2}$  C)  $\frac{(y - 3)(y + 2)}{(y + 5)^2}$  D)  $\frac{(y + 3)(y + 2)}{y - 5}$

**Divide the rational expression. Express the quotient as a rational expression in lowest terms.**

- 4)  $\frac{\frac{x^2 + 13x + 36}{x^2 + 17x + 72}}{\frac{x^2 + 4x}{x^2 + 11x + 24}}$  4) \_\_\_\_\_
- A)  $\frac{x}{x^2 + 17x + 72}$  B)  $\frac{x + 3}{x^2 + 8x}$  C)  $\frac{x + 3}{x}$  D)  $x + 3$

**Add or subtract, as indicated, and simplify the result.**

- 5)  $\frac{m + 2}{m^2 - 7m + 12} + \frac{4m - 5}{m^2 - 5m + 4}$  5) \_\_\_\_\_
- A)  $\frac{5m^2 - 16m + 13}{(m + 4)(m + 3)(m + 1)}$  B)  $5m - 3$
- C)  $\frac{5m^2 - 16m + 13}{(m - 4)(m - 3)(m - 1)}$  D)  $\frac{5m - 3}{2m^2 - 12m + 16}$

**Simplify the complex rational expression**

6)

$$\frac{\frac{3}{x+5} + \frac{9}{x+3}}{\frac{2x+9}{x^2+8x+15}}$$

6) \_\_\_\_\_

A) 6

B)  $2x + 9$

C)  $\frac{1}{6}$

D) 12

**Solve the equation.**

7)  $\frac{6}{5x} - \frac{1}{x+1} = \frac{3}{2x^2+2x}$

7) \_\_\_\_\_

A)  $x = 3$

B)  $x = \frac{3}{2}$

C)  $x = \frac{3}{10}$

D) No solution

8)  $\frac{1}{x+4} - \frac{3}{x-4} = \frac{4}{x^2-16}$

8) \_\_\_\_\_

A)  $x = 10$

B)  $x = 20$

C)  $x = 15$

D)  $x = -10$

**Solve the rational inequality.**

9)  $\frac{x-7}{x+5} < 0$

9) \_\_\_\_\_

A)  $(-5, 7)$

B)  $(-\infty, -5)$

C)  $(7, \infty)$

D)  $(-\infty, -5) \cup (7, \infty)$

10)  $\frac{4x}{4-x} \geq 2x$

10) \_\_\_\_\_

A)  $(-\infty, 2] \cup [4, \infty)$

B)  $(-\infty, 0] \cup [2, 4)$

C)  $[0, 2] \cup [4, \infty)$

D)  $[4, \infty)$

**Solve the work problem.**

- 11) One pump can drain a pool in 8 minutes. When a second pump is also used, the pool only takes 2 minutes to drain. How long would it take the second pump to drain the pool if it were the only pump in use? (Round your answer to the nearest tenth, if necessary.)

11) \_\_\_\_\_

A) 2.7 minutes

B) 10 minutes

C) 1.6 minutes

D) 3.9 minutes

**Solve the motion problem.**

- 12) Jim can run 5 miles per hour on level ground on a still day. One windy day, he runs 14 miles with the wind, and in the same amount of time runs 5 miles against the wind. What is the rate of the wind? (Round your answer to the nearest tenth, if necessary.)

12) \_\_\_\_\_

A) 4.5 miles per hour

B) 5 miles per hour

C) 10.6 miles per hour

D) 2.4 miles per hour

## Answer Key

Testname: WKSHT REVIEW FOR CH.6

- 1) D
- 2) B
- 3) B
- 4) C
- 5) C
- 6) A
- 7) B
- 8) D
- 9) A
- 10) B
- 11) A
- 12) D