Math 116 Group Review Assignment (7.1–7.6)

Print Name_____

MULTIPLE CHOICE. Choose the answer that best completes the statement or answers the question. Clearly write your choice in the blank provided. Also fill in the scantron answer sheet. There is only one answer per question. If a question appears to have no instructions, use the instructions for the previous question. Good luck and have fun!

Fill in the blank.

1) $\frac{x}{2} = \frac{7}{16}$ is an example of a(n) _____. 1) _____

A) proportion

B) least common denominator

C) complex fraction

D) reciprocals

2) The expressions $\frac{2x}{7}$ and $\frac{7}{2x}$ are called _____. 2) _____

A) complex fraction

B) proportion

C) reciprocals

D) least common denominator

Simplify the expression.

3) $\frac{a^2 - ab + 8a - 8b}{a + 8}$ 3) _____

A) a – b

B) $\frac{a^2 - ab + 8a - 8b}{a + 8}$

C) $\frac{1}{a + 8}$

D) a – 2b + 1

4) $\frac{-6x + 6y}{-6y + 6x}$ 4) _____

A) 6

B) 1

C) –1

D) –6

Perform the indicated operation. Simplify if possible.

5) $\frac{5}{x-2} + \frac{5}{2-x}$ 5) _____

A) $\frac{10}{x-2}$

B) $-\frac{10}{x-2}$

C) 0

D) $\frac{5}{x-2}$

6) $\frac{2a+4b}{2} - \frac{2a-4b}{2}$ 6) _____

A) 4b

B) 16b

C) 0

D) 2a

7) $\frac{4}{x^2 - 3x + 2} + \frac{6}{x^2 - 1}$ 7) _____

A) $\frac{10x - 8}{(x - 1)(x - 2)}$

B) $\frac{8x - 10}{(x - 1)(x + 1)(x - 2)}$

C) $\frac{48x - 8}{(x - 1)(x + 1)(x - 2)}$

D) $\frac{10x - 8}{(x - 1)(x + 1)(x - 2)}$

Find the product and simplify.

8) $\frac{x^2 + 17x + 72}{x^2 + 18x + 81} \cdot \frac{x^2 + 9x}{x^2 + 5x - 24}$ 8) _____

A) $\frac{1}{x - 3}$

B) $\frac{x(x + 9)}{x - 3}$

C) $\frac{x}{x - 3}$

D) $\frac{x}{x^2 + 18x + 81}$

9) $\frac{2z^3}{5} \cdot \frac{15}{z^2}$ 9) _____

A) $\frac{6z^2}{z^3}$

B) $\frac{z}{6}$

C) $6z$

D) $\frac{6}{z}$

Rewrite the rational expression as an equivalent rational expression with the given denominator.

10) $\frac{x + 2}{10x^2 + 145x + 195} = \frac{}{x(10x + 15)(x + 11)(x + 13)}$ 10) _____

A) $\frac{x(x + 2)}{x(10x + 15)(x + 11)(x + 13)}$

B) $\frac{(x + 2)(x + 11)}{x(10x + 15)(x + 11)(x + 13)}$

C) $\frac{x(x + 2)(10x + 15)(x + 13)(x + 11)}{x(10x + 15)(x + 11)(x + 13)}$

D) $\frac{x(x + 2)(x + 11)}{x(10x + 15)(x + 11)(x + 13)}$

Solve the equation.

11) $\frac{2}{t} = \frac{t}{5t - 12}$ 11) _____

A) 4, 6

B) 0

C) 0, $\frac{24}{9}$

D) 0, 36

12) $\frac{x}{2x + 2} = \frac{-2x}{4x + 4} + \frac{2x - 3}{x + 1}$ 12) _____

A) 3

B) no solution

C) –3

D) $\frac{3}{2}$

SHORT ANSWER. Solve. Show your work and use algebraic methods. Circle your final answer and include units if applicable.

13) $\frac{7x}{8} - 2 = x$ 13) _____

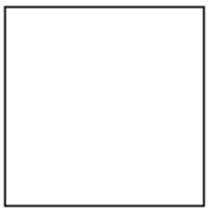
Perform the indicated operations. Simplify if possible.

14) $\frac{3x}{x^2 - 5x - 36} - \frac{x - 1}{x^2 - 16} + \frac{1}{x^2 - 13x + 36}$ 14) _____

Solve.

15) Eight out of 10 adults in a certain city buy their drugs at large drug stores. If this city has 48,000 adults, how many of these adults would you expect to buy their drugs at large drug stores? 15) _____

16) A square shaped pasture has a side of length $\frac{7}{x + 3}$ meters. 16) _____



$\frac{7}{x + 3}$ meters

Express the perimeter of the pasture as a rational expression.

Find the quotient and simplify.

17) $\dfrac{35m^2 + 32mn - 12n^2}{15m^2 - 2mn - 24n^2} \div \dfrac{35m^2 + 11mn - 6n^2}{35m^2 + 61mn + 24n^2}$ 17) _____

Find the least common denominator (LCD).

18) $\dfrac{5}{x^2 - 4x}, \dfrac{6}{x^2 - 2x - 8}$ 18) _____

Find the domain of the rational expression.

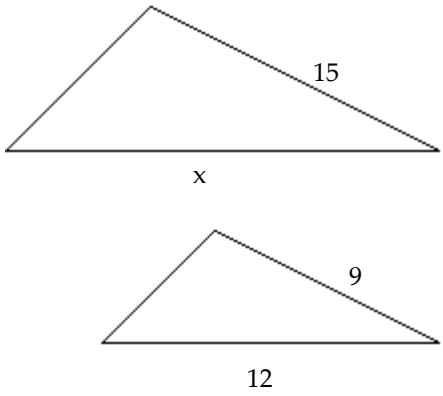
19) $f(x) = \dfrac{-9}{7x + 2}$ 19) _____

Solve the equation for the indicated variable.

20) $V = \dfrac{Bh}{3}$ for h 20) _____

Given that the pair of triangles is similar, find the missing length.

21) 21) _____



1) A
Objective: (7.8) Vocabulary Check

2) C
Objective: (7.8) Vocabulary Check

3) A
Objective: (7.1) Simplify or write rational expressions in lowest terms.

4) C
Objective: (7.1) Simplify or write rational expressions in lowest terms.

5) C
Objective: (7.4) Add and subtract rational expressions with unlike denominators.

6) A
Objective: (7.3) Add and subtract rational expressions with the same denominator.

7) D
Objective: (7.4) Add and subtract rational expressions with unlike denominators.

8) C
Objective: (7.2) Multiply rational expressions.

9) C
Objective: (7.2) Multiply rational expressions.

10) D
Objective: (7.3) Write a rational expression as an equivalent expression whose denominator is given.

11) A
Objective: (7.5) Solve equations containing rational expressions.

12) A
Objective: (7.5) Solve equations containing rational expressions.

13) – 16
Objective: (7.5) Solve equations containing rational expressions.

14) $\frac{2x^2 - x - 5}{(x - 9)(x + 4)(x - 4)}$
Objective: (7.4) Concept Extensions

15) 38,400 adults
Objective: (7.6) Use proportions to solve problems.

16) $\frac{28}{x + 3}$ m
Objective: (7.3) Concept Extensions

17) $\frac{7m + 8n}{3m - 4n}$
Objective: (7.2) Divide rational expressions.

18) x(x – 4)(x + 2)
Objective: (7.3) Find the least common denominator of a list of rational expressions.

19) $\left\{x \mid x \text{ is a real number and } x \neq -\frac{2}{7}\right\}$
Objective: (7.1) Find the domain of a rational expression.

20) $h = \frac{3V}{B}$
Objective: (7.5) Solve equations containing rational expressions for a specified variable.

21) x = 20
Objective: (7.6) Use proportions to solve problems.