Exam 4 Review: Module 6

Name_____

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Simplify the expression.

1) $\dfrac{30x^3}{6x}$

1) _____

Answer: $5x^2$

2) $\dfrac{20x^2 + 8x}{20x}$

2) _____

Answer: $\dfrac{5x + 2}{5}$

3) $\dfrac{18}{3m - 9}$

3) _____

Answer: $\dfrac{6}{m - 3}$

4) $\dfrac{-4x - 4y}{x + y}$

4) _____

Answer: -4

5) $\dfrac{(y + 8)(y - 2)}{(y - 2)(y + 4)}$

5) _____

Answer: $\dfrac{y + 8}{y + 4}$

6) $\dfrac{3x + 2}{15x^2 + 22x + 8}$

6) _____

Answer: $\dfrac{1}{5x + 4}$

7) $\dfrac{49 - x^2}{x^2 - 10x + 21}$

7) _____

Answer: $-\dfrac{x + 7}{x - 3}$

8) $\dfrac{y^2 + 9y + 18}{y^2 + 13y + 42}$

8) _____

Answer: $\dfrac{y + 3}{y + 7}$

9) $\dfrac{5x^2 - 13x + 6}{x - 2}$

    Answer: 5x - 3

Find the product and simplify.

10) $\dfrac{9}{x + 9} \cdot \dfrac{x}{10}$

    Answer: $\dfrac{9x}{10(x + 9)}$

11) $\dfrac{3y}{6y + 3} \cdot \dfrac{14y + 7}{3}$

    Answer: $\dfrac{7y}{3}$

12) $\dfrac{3p - 3}{p} \cdot \dfrac{2p^2}{7p - 7}$

    Answer: $\dfrac{6p}{7}$

13) $\dfrac{x^2 + 10x + 25}{x^2 + 8x + 15} \cdot \dfrac{x^2 + 9x + 18}{x^2 + 11x + 30}$

    Answer: 1

14) $\dfrac{x^2 + 12x + 32}{x^2 + 14x + 48} \cdot \dfrac{x^2 + 6x}{x^2 + 2x - 8}$

    Answer: $\dfrac{x}{x - 2}$

Perform the indicated operation. Simplify if possible.

15) $\dfrac{36}{6x} + \dfrac{10}{5x}$

    Answer: $\dfrac{8}{x}$

16) $\dfrac{2x - 10}{9x} + \dfrac{x + 1}{4x}$

    Answer: $\dfrac{17}{36x}$

17) $-\dfrac{3}{28} - \dfrac{2x - 5}{7x}$

    Answer: $\dfrac{-6x - 35}{56x}$

18) $\dfrac{6a}{b} + \dfrac{2b}{7}$

     Answer: $\dfrac{42a + 2b^2}{7b}$

19) $-\dfrac{4}{35} - \dfrac{8+x}{7x}$

     Answer: $\dfrac{-4x - 40}{35x}$

19) _____

20) $\dfrac{4}{x^2} - \dfrac{5}{x}$

     Answer: $\dfrac{4 - 5x}{x^2}$

20) _____

Solve the proportion.

21) $\dfrac{x}{39} = \dfrac{2}{13}$

     Answer: 6

21) _____

22) $\dfrac{40}{x} = \dfrac{8}{6}$

     Answer: 30

22) _____

23) $\dfrac{x + 6}{5} = \dfrac{x + 8}{7}$

     Answer: -1

23) _____

24) $\dfrac{2x + 3}{x} = \dfrac{3}{2}$

     Answer: -6

24) _____

25) $\dfrac{9}{11} = \dfrac{x - 8}{x - 4}$

     Answer: 26

25) _____

26) $\dfrac{1}{x + 7} = \dfrac{3}{5x}$

     Answer: $\dfrac{21}{2}$

26) _____

Solve.

27) The ratio of a quarterback's completed passes to attempted passes is 5 to 8. If he attempted 32 passes, find how many passes he completed. Round to the nearest whole number if necessary.

     Answer: 20 passes

27) _____

28) On an architect's blueprint, 1 inch corresponds to 9 feet. Find the length of a wall represented by a line $3\frac{2}{3}$ inches long on the blueprint. Round to the nearest tenth if necessary.

28) _____

Answer: 33 ft

29) On an architect's blueprint, 1 inch corresponds to 9 feet. If an exterior wall is 54 feet long, find how long the blueprint measurement should be. Write answer as a mixed number if necessary.

29) _____

Answer: 6 in.

30) On a map of Nature's Wonder Hiking Trails, 1 centimeter corresponds to 4 miles. Find the length of a trail represented by a line that is $6\frac{1}{2}$ centimeters long on the map.

30) _____

Answer: 26 mi

31) The scale on a map states that 1 centimeter corresponds to 40 kilometers. On the map, two cities are 1.3 cm apart. Find the actual distance.

31) _____

Answer: 52 km

32) It is recommended that there be at least 17 square feet of work space for every person in a conference room. A certain conference room is 13 feet by 10 feet. Find the maximum number of people the room can accommodate.
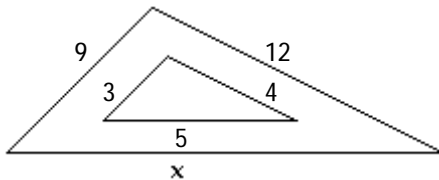
32) _____

Answer: 7 people

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

33)

33) _____
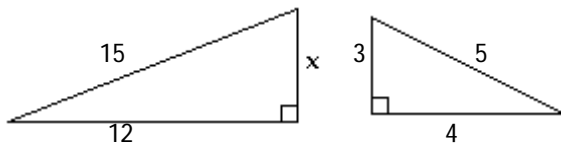
Answer: x = 9

34)

34) _____

Answer: x = 15

Solve.

35) Convert 12 feet to meters (round answer to the nearest tenth)

35) _____

Answer: 18 people

36) Convert 5 liters to quarts (round answer to the nearest tenth)

36) _____

Answer: 18 people

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37) Convert 31 centimeters to inches (round answer to the nearest tenth)   37) _____
    Answer: 16 people

38) Convert 40 grams to ounces (round answer to the nearest tenth)   38) _____
    Answer: 11 people