

# Unit 3-Assessment REVIEW

Write the equation to model the relationship between x and y:

1. y varies inversely with x. If y=40 when x=16, find x when y=-5.

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2. The time it takes to fly from Los Angeles to New York varies inversely as the speed of the plane. If the trip takes 6 hours at 900 km/h, how long would it take at 800 km/h?

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- 3.

x	1	3	4	10	0.5
y	30	10	7.5	3	60

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Simplify the following expressions:

4.  $\frac{x+2}{2x^2+13x+20} - \frac{x+3}{2x^2+13x+20}$

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5.  $6 - \frac{x+5}{(7x-5)(x+4)}$

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6.  $\frac{5x+5}{5x^2+35x-40} + \frac{7x}{3x}$

\_\_\_\_\_

7.  $\frac{3x^2+4x+1}{2x^2+7x+6} \div \frac{x^2-2x-3}{-5x^2+25x-30}$

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8.  $\frac{x^2+3x-28}{x^2+4x+4} \cdot \frac{x^2-5x-13}{x^2-49}$

\_\_\_\_\_

9.  $\frac{x^3+3x}{x^2-9} \div \frac{x^2+5x-14}{x^2+4x-21}$

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Describe the transformation of each function below from the parent function:

10.  $y = \sqrt{x-3} + 11$

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11.  $y = -(x+3)^2 + 1$

\_\_\_\_\_

12.  $y = \frac{2}{(x-2)} - 2$

\_\_\_\_\_

13.  $y = -\sqrt{x+1} - 6$

\_\_\_\_\_

14.  $y = \frac{-4}{x} - 3$

\_\_\_\_\_

15.  $y = (x-4)^2 + 7$

\_\_\_\_\_

Solve the following equations for the unknown variable:

16.  $\sqrt{x+3} = 5$       x=\_\_\_\_\_

17.  $-10\sqrt{x-10} = -60$       x=\_\_\_\_\_

18.  $\sqrt{2x-88} = \sqrt{\frac{x}{6}}$       x=\_\_\_\_\_

19.  $x = \sqrt{42-x}$       x=\_\_\_\_\_

20.  $-x + \sqrt{6x+19} = 2$       x=\_\_\_\_\_

21.  $x - 6 = \sqrt{18-3x}$       x=\_\_\_\_\_

Simplify each of the square roots below:

22.  $\sqrt{144}$  \_\_\_\_\_

23.  $\sqrt{175}$  \_\_\_\_\_

24.  $\sqrt{343}$  \_\_\_\_\_

Use exponent properties to simplify the radical expression below:

25.  $\sqrt[3]{125x^9y^{12}z^{15}}$  \_\_\_\_\_

26.  $\sqrt{256a^{10}b^2}$  \_\_\_\_\_

27.  $\sqrt[4]{81g^{12}h^2i^{16}}$  \_\_\_\_\_

Rewrite the radical expression in exponential form:

28.  $\sqrt[7]{(2x)^4}$  \_\_\_\_\_

29.  $\sqrt{(10x)^2}$  \_\_\_\_\_

30.  $\frac{1}{\sqrt{(3x)^5}}$  \_\_\_\_\_

Rewrite each expression in radical form:

31.  $(8m)^{\frac{3}{7}}$  \_\_\_\_\_

32.  $9x^{\frac{1}{2}}$  \_\_\_\_\_

33.  $2^{-\frac{3}{5}}$  \_\_\_\_\_

Create a graph for each function below and identify the key features:

34.  $y = \frac{-1}{(x-3)} + 2$

a. Describe the transformation:

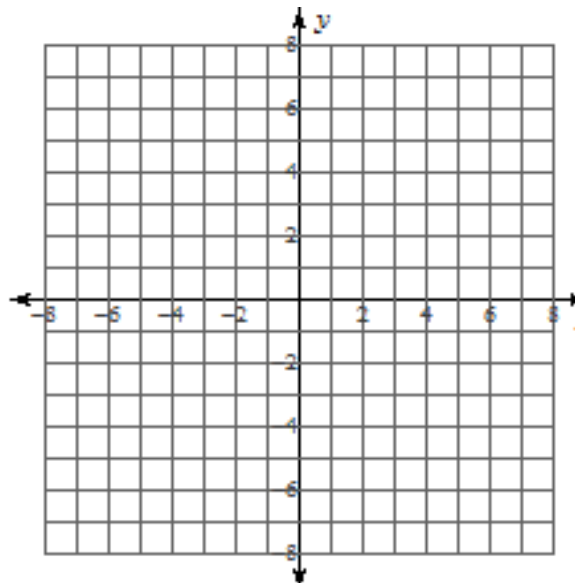
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b. Vertical Asymptote at: \_\_\_\_\_

c. Horizontal Asymptote at: \_\_\_\_\_

d. Domain: \_\_\_\_\_

e. Range: \_\_\_\_\_



35.  $y = \sqrt{x+4} - 5$

a. Describe the transformation:

\_\_\_\_\_

b. Domain: \_\_\_\_\_

c. Range: \_\_\_\_\_

d. Increase: \_\_\_\_\_

e. Decrease: \_\_\_\_\_

f. Max or Min @: \_\_\_\_\_

