

**Directions – Complete each problem. You must SHOW WORK for credit!!**

1.) Solve:  $-6 + \sqrt{x-5} = -2$

$$\{2, 13\}$$

2.) Solve:  $\sqrt{6x+4} = 4$

$$\{2\}$$

3.) Solve:  $\sqrt{x+72} = x$

$$\{9, 3\}$$

4.) Solve:  $8\sqrt{x+6} - 7 = -79$

$$\emptyset$$

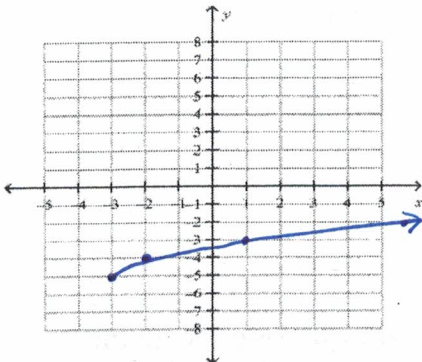
5.) Solve:  $x = 5 + \sqrt{2x-10}$

$$\{5, 7\}$$

6.) Solve:  $(-3x+18)^{\frac{1}{2}} = x$

$$\{3\}$$

7.) Graph:  $f(x) = \sqrt{x+3} - 5$



D:  $[-3, \infty)$

R:  $[-5, \infty)$

8.) What is the domain and the range for:

$$f(x) = \sqrt{x+2} - 3?$$

D:  $[-2, \infty)$

R:  $[-3, \infty)$

9.) Simplify:  $\sqrt[4]{256z^{16}}$

$$4z^4$$

10.) Write in simplified radical form:

$$8^{\frac{1}{3}} x^{\frac{5}{3}}$$

$$2x\sqrt[3]{x^2}$$

11.) Simplify:

$$16^{-\frac{1}{4}} \left( 27x^{-\frac{15}{2}} \right)^{\frac{2}{3}}$$

$$\frac{9}{2x^5}$$

12.) Simplify:  $\sqrt{6a^5b^2} \cdot \sqrt{3ab^3}$

$$3a^3b^2\sqrt{2b}$$

13.) Simplify:

$$\sqrt{\frac{48m^2}{3m^3}}$$

$$\frac{4\sqrt{m}}{m}$$

14.) The letter z varies directly with x and inversely with the square of y where z = 8 when x = 50 and y = 5. Write an equation that represents the situation above.

$$z = \frac{4x}{y^2}$$

15.) A varies inversely as the square root of B where  $A = \frac{21}{4}$  when B = 64. Find B when A = 7.

$$B = 36$$

16.) The size of a computer monitor is given as the length of the screen's diagonal d in inches.

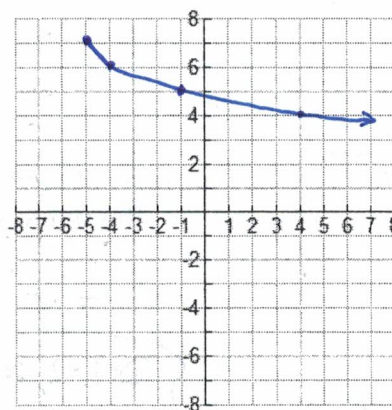
The equation  $d = \frac{3}{4}\sqrt{2A}$  models the length of a diagonal of a monitor screen with area A in square inches. What is the area of a monitor if the length of its diagonal is 9 inches?

$$72 \text{ in}^2$$

17.) Graph the square root function below.

State the domain/range in interval notation.

$$f(x) = -\sqrt{x+5} + 7$$



D:  $[-5, \infty)$

R:  $(-\infty, 7]$

18.) Solve:

$$2\sqrt{2x+1} = \sqrt{5x+28}$$

$$\{8\}$$

19.) The variable y varies inversely with the variable x. If x = 15 when y = 5, then find y when x = 25.

$$y = 3$$