



READY

Topic: Determine if a given value or point is a solution to an equation.

For each of the equations below, determine if x = -2 is a solution. Justify your answer.



For each of the functions below, determine if the point (3, 4) is a solution. Justify your answer.



Lesson 7

SET

Topic: Solve square root and inverse variation equations.

Solve each equation. Remember to look for extraneous solutions.

13.
$$-x = \frac{1}{x}$$

 $-x^{2} = 1$
 $(x^{2} = \frac{1}{1})$
 $(x = \frac{1}{10})$
 $(x = \frac{1}$

GO!

Topic: Solve problems involving direct and inverse variation relationships.

19. If y varies inversely as x, and y = 32 when x = 3, find x when y = 15.

$$y = \frac{\sqrt{k}}{\chi} \qquad 32 = \frac{\sqrt{k}}{3} \qquad y = \frac{\sqrt{6}}{\chi}$$

$$90 = \sqrt{k} \qquad 15 = \frac{90}{\chi}$$

$$\frac{15x = \frac{90}{15}}{\frac{15}{15}} \qquad x = 6.4$$

20. If y varies directly as x, and y = 8 when x = 2, find y when x = 5.

$$y = JR \times y = 4 \times$$

 $8 = JR (2) \qquad y = 4(5)$
 $4 = JR \qquad y = 20$

NC Math 2 Unit 6 Square Root and Inverse Variation Functions

Lesson 7

21. The frequency of vibration of a guitar string varies inversely with the length of the guitar string. Suppose a guitar string is 0.65 meters long, and vibrates 4.3 times per second. At what frequency would a string that is 0.5 meters long vibrate?

$$f = JR + 4.3 = \frac{JR}{.65} + \frac{2.795}{JR}$$

$$2.795 = JR + \frac{5}{.5}$$

$$f = 2.795 = \frac{1}{.5}$$

$$f = 5.59 + imes$$

$$per sec.$$

22. The amount of calories a person burns varies directly with the amount of miles that they run. Sonya ran 2 miles on a treadmill. The display reported that she burned 220 calories. She wants to treat herself with a hot fudge sundae after her workout. A hot fudge sundae has 380 calories. How far does Sonya have to run to burn off that many calories?

$$C = JR d$$
 $C = 110d$
 $220 = JR (2)$ $380 = 110d$
 $110 = JR$ 110 110
 $d \approx 3.45 \text{ miles}$

23. The current in a simple electrical circuit is inversely proportional to the resistance. If the current is 80 amps when the resistance is 50 ohms, find the current when the resistance is 22 ohms.

$$C = \frac{k}{R} = \frac{80}{50} = \frac{k}{50} = \frac{1000}{R}$$

$$H_{000} = \frac{1}{R} = \frac{4000}{22}$$

$$C = \frac{4000}{22}$$

$$C \approx 181.8 \text{ amps}$$

24. The amount of money you earn varies directly with amount of time that you work. If you work 6.5 hours, you will make \$66.95. If you made \$97.85, how many hours did you work?

$$M = kt \qquad M = 10.30 t$$

$$bb.95 = k(b.5) \qquad 97.85 = 10.30 t$$

$$10.3 = k \qquad 9.5 = t$$

$$9.5 = t$$

$$9.5 = t$$