NC Math 2 Unit 6 Square Root and Inverse Variation Functions

14=110

C = K(W)

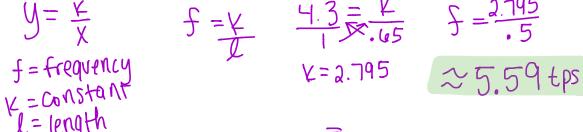
c=calories burnt

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?

Irm-UP

= 3.45 miles

6.8



22. The amount of calories a person burns varies <u>directly</u> 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?

 $M = M_1(lS + lQM)$ 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.

 $\Box 000 = K$ 181.8 $C = \frac{4000}{22}$ C=CUTIPNA (= VPSISTUNIA 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?

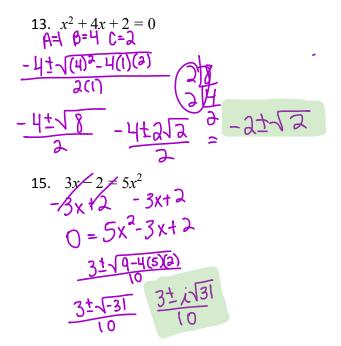
Developed by CHCCS and WCPSS http://www.mesacc.edu/~scotz47781/mat120/notes/variation/inverse/inverse_practice.html NC Math 2 Unit 6 Square Root and Inverse Variation Functions (b)=-4ac

lQ

6.9

11.
$$x^{2}-5x+10=0$$

 $5\pm\sqrt{25-4(1)(10)}$
 $5\pm\sqrt{-15}$
 2
 $5\pm\sqrt{15}$
 2



12.
$$-2x^{2} + 4x + 6 = 15$$

 $-3x^{2} + 4x - 6 = 0$
 $-4 \pm \sqrt{(4)^{2} - 4(x)(9)}$
 $a(-a)$
 $-4 \pm \sqrt{-56}$ $-4 \pm 2x + 14$
 $-4 = -2 \pm x - 14$
 $-4 = -2 \pm x - 14$
 $-3x^{2} + 5x - 3x^{2} + 5x$
 $3x^{2} - 3x + 3x - 3x^{2} + 5x$
 $3x^{2} - 3x + 3x = 0$
 $a \pm \sqrt{4 - 4(x)(3)}$
 $4 = 3x^{2} + 3x - 3x^{2} + 5x$
 $3x^{2} - 3x + 3x = 0$
 $a \pm \sqrt{4 - 4(x)(3)}$
 $4 = 3x^{2} + 6x + 16$
 $-7 + 8x^{2} = 6x + 16$
 $-7 + 8x^{2} = 6x + 16$
 $-6 \pm \sqrt{(3)^{2} - 4(x)(9)}$
 $-3 \pm 3x + 3x - 3x^{2} + 5x$
 $-3x^{2} + 5x - 3x^{2} + 5x$
 $-6 \pm \sqrt{(3)^{2} - 4(x)(9)}$
 $-3 \pm 3x - 3x + 3x^{2} + 5x^{2} + 5x^{2$

4. Substitute the solutions back into the functions to see if the outputs are elements in the range of each function.

$$f(x) = x - 1$$

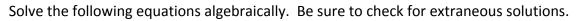
$$g(x) = \sqrt{2x + 6}$$

5. Are all of the outputs elements in the range of both functions? Explain why or why not.

6. If the square root function was reflected over the x-axis, so that it's equation was $h(x) = -\sqrt{2x+6}$, what would be the solution to the equation $x - 1 = -\sqrt{2(x+3)}$?

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12



7)
$$\frac{2}{x} = 3x + 5$$

8) $2x + 3 = \frac{5}{x}$
9) $\frac{6}{x} = 9 - 3x$
1) $\frac{7}{2}$
2
Helsection

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10)
$$4x - 7 = \frac{2}{x}$$
 11) $\frac{3}{5}x + 5 = \sqrt{2x - 1} + 5$ 12) $4x - 2 = \sqrt{x + 3}$

13)
$$\sqrt{4x} = -2x + 4$$
 14) $0.5x - 8 = 2 - 2\sqrt{x + 1}$ 15) $x - 7 = -\sqrt{4x - 8}$

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