Math-19 Homework #2

Reading

Please read sections 1.1 through 1.5 and 1.7 and then do all concept problems in the posted sections on webassign.

Problems

1). Simplify completely. Your answer should have no negative exponents and please rationalize the denominator. Don't worry if the exponents get messy.

$$\frac{\sqrt[4]{\sqrt{75}+\sqrt{27}}}{\sqrt{4\sqrt{20}\sqrt[3]{54}}}$$

2). A student writes the following statements. Determine if each is either correct or incorrect (or misleading). Explain why incorrect statements are incorrect.

a). $\sqrt{9} = \pm 3$

b). $\left(x^{\frac{1}{2}}\right)^2 = |x|$

c). $(x^2)^{\frac{1}{2}} = x$

d). $(x^3)^{\frac{1}{3}} = |x|$

3). Solve for x by *completing the square*.

$$2x^2 + 4x - 3 = 0$$

4). A man stands atop a $256ft$ cliff with a ball.

a). How long does it take for the ball to hit the ground if he simply releases the ball?

b). How long does it take for the ball to hit the ground if he throws the ball up with a velocity of $16ft/s$?

c). How long does it take for the ball to hit the ground if he throws the ball down with a velocity of $16ft/s$? (Hint: no additional calculations are needed).

d). Assume that a lady is standing on the ground below the cliff and throws a ball up so that it passed the man on the cliff at a velocity of $16ft/s$. How long would it be before the ball hits the ground? (Hint: you already have all the information that you need).

5). Muri is a shopkeeper that specializes in pickled vegetables. She has determined over the years that the best brine (salt solution) for pickling vegetables is 2 kg of salt per liter of water (2 kg/L). One day, she has her not-so-bright nephew helping her and he uses too much salt, resulting in a 5 kg/L solution. If her nephew made up 10 liters of the too-salty solution, how much pure water must he add to it to get the ideal 2 kg/L solution? For full credit, show the mixture equation and the appropriate values for each concentration and volume value in the equation.