Take Home Quiz 1  
Due Thursday 1/27

Present all work on these sheets (no attachments). Present your solutions logically and neatly and box your answer. Answer word problems with complete sentences including units. Print your name on the back.

Problem 1 (5 points) Solve and state whether equation is conditional, identity or contradiction. (#78, p 57)

\[-5x+5+3x+7 = 5x-6+x+12\]

\[-2x+12 = 6x+6\]

\[-12 = 12\]

\[-2x+0 = 6x-6\]

\[-2x = 6x-6\]

\[-6x = -6x\]

\[-8x = -6\]

\[x = \frac{-6}{-8} = \frac{3}{4}\]

or \[\{3/4\}\] conditional

Problem 2 (5 points) Solve and state whether equation is conditional, identity or contradiction. (#82, p 57)

\[13z-8(z+1) = 2(z-3)+3z\]

\[13z-8z-8 = 2z-6+3z\]

\[5z-8 = 5z-6\]

\[-5z = -5z\]

\[-8 \neq -6\] No!

\[\{3, \emptyset\}, \text{ contradiction}\]

Problem 3 (5 points) A shirt has been discounted by 30% and is now selling for $28. What was its original price? (#58, p 71)

Let the original price be \(p\)

\[p-(.3p) = 28\]

\[.7p = 28\]

\[p = \frac{28}{.7} = \frac{280}{7}\]

\[p = 40\]

The original price was $40.

Problem 4 (5 points) A piggy bank contains only nickels and dimes. It has 48 coins, whose total worth is $4.50. How many coins are nickels? (#74, p 71)

Let \(n = \# \text{ of nickels}\)

Then \[48-n = \# \text{ of dimes}\]

\[\frac{\# \text{ of nickels}}{\# \text{ of dimes}} = \# \text{ total}\]

\[.05n + .10(48-n) = 4.50\]

\[.05n + 4.8 - .10n = 4.50\]

\[.05n = .30\]

\[5n = 30\]

\[n = 6\]

There are 6 nickels.