

Math 40 - Quiz 5

Be sure to use PROPER mathematical notation and show some steps. Use back of page if needed.

Use the following **5-Step Problem Solving Process** to solve the problem below.

Steps:

1. Declare Variables
2. Equation
3. Solving it!
4. Check it!
5. Say!

Solve ONE of the TWO following problems.

- a) Mary has \$3.85 in a piggy bank all in nickels and quarters. She has twice as many quarters as she has nickels. How many of each type of coin does she have?
- b) The side lengths of a triangle are three consecutive ODD integers. The perimeter of the triangle is 33. Find the lengths of the sides of the triangle.

Step 1:

Let $x = \# \text{ Nickels}$
 $2x = \# \text{ Quarters}$

Type	#	Value	Total Value
Q	$2x$	25	$25(2x)$
N	x	5	$5(x)$
total			385

Step 2/3:

$$25(2x) + 5x = 385$$

$$50x + 5x = 385$$

$$55x = 385$$

$$x = 7$$

then $2x = 14$

$$\begin{array}{r} 35 \\ \times 7 \\ \hline 385 \end{array}$$

Step 4:

Check: $x = 7$

$$50(7) + 5(7) = 385$$

$$350 + 35 = 385$$

$$385 = 385$$

$$\begin{array}{r} 50 \\ \times 7 \\ \hline 350 \end{array}$$

Step 5:

There are 7 nickels and 14 quarters.

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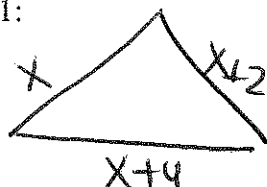
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Step 1:



Let $x, x+2, x+4$ be consecutive odd integers

Step 2/3:

Perimeter = Side₁ + Side₂ + Side₃

$$33 = x + x + 2 + x + 4$$

$$33 = 3x + 6$$

$$33 - 6 = 3x$$

$$27 = 3x$$

$$9 = x \Rightarrow x + 2 = 11 \Rightarrow x + 4 = 13$$

$$\begin{array}{r} 27 \\ -6 \\ \hline 21 \end{array}$$

Step 4: Check: $x = 9$

$$33 = 3(9) + 6$$

$$33 = 27 + 6$$

$$33 = 33 \checkmark$$

$$\begin{array}{r} 27 \\ +6 \\ \hline 33 \end{array}$$

Step 5:

The side lengths are 9, 11 & 13.