Math 80 Quiz #1

1. (a) $\frac{5}{6} - \frac{1}{2} = \frac{5}{6} - \frac{3}{6} = \frac{2}{6} = \frac{1}{3}$

   (b) $(3.4)(0.2) = 0.68$ (Note that $34 \times 2 = 68$.)

   (c)
   $$\begin{aligned} 3 - 2(4+1)^2 &= 3 - 2(5)^2 && \text{Order of Operations: Do operations within parenthesis first.} \\ &= 3 - 2(25) && \text{Exponents} \\ &= 3 - 50 && \text{Multiplication} \\ &= -47 && \text{Subtraction} \end{aligned}$$

2. (a) $\frac{1}{3}x - 1 = 4 \quad \Rightarrow \quad \frac{1}{3}x = 5$ (Adding 1 to both sides)

   $x = 15$ (Multiplying both sides by 3 OR dividing both sides by $\frac{1}{3}$)

   Answer: $x = 15$

   Check: Plugging in $x = 15$ on the left-side: $\frac{1}{3}(15) - 1 = 5 - 1 = 4$ ✓

   (b) $2x + 6 = 4(x-3) + 8 \quad \Rightarrow \quad 2x + 6 = 4x - 12 + 8$ (Simplifying the right-side)

   $2x + 6 = 4x - 4$

   $6 = 2x - 4$ (Subtracting $2x$ from both sides)

   $10 = 2x$ (Adding 4 from both sides)

   $5 = x$ (Dividing both sides by 2)

   Answer: $x = 5$

   Check: Plugging in $x = 5$ on the left-side: $2(5) + 6 = 16$
   Plugging in $x = 5$ on the right-side: $4(5-3) + 8 = 4(2) + 8 = 16$ ✓

3. **Unknown:** Length of 1st piece $= x$, Length of 2nd piece $= 3x$

   Equation: (Length of 1st piece) + (Length of 2nd piece) = 6 feet

   $\Rightarrow \quad x + 3x = 6 \quad \Rightarrow \quad 4x = 6$

   $x = \frac{6}{4} = \frac{3}{2}$ or $1\frac{1}{2}$ or 1.5

   So, the first piece is 1.5 feet long and the second piece is 4.5 feet long.