

## PRECALC: Mixture Problems

- ⑨ How much sand do you need to add to  $6 \text{ ft}^3$  of soil with 35% sand to make soil with 61% sand?

$$(6 \text{ ft}^3 \text{ of soil})(.35) = 2.1 \text{ ft}^3 \text{ of sand}$$

Let  $x$  be  $\text{ft}^3$  of sand added

$$\boxed{\frac{2.1 + x}{6 + x} = 0.61} \quad \text{Solve for } x$$

$$\cancel{(6+x)} \frac{2.1+x}{\cancel{(6+x)}} = 0.61 \cancel{(6+x)}$$

NOTE:  
 $x = 1x$   
 $x = 1.0x$

$$\begin{array}{r} 2.1 + 1.0x = 3.66 + 0.61x \\ -0.61x \qquad \qquad -0.61x \end{array}$$

$$\begin{array}{r} 2.1 + 0.39x = 3.66 \\ -2.1 \qquad \qquad -2.10 \end{array}$$

$$\begin{array}{r} 0.39x = 1.66 \\ \hline .39 \qquad .39 \end{array}$$

$$\boxed{x = 4 \text{ ft}^3 \text{ sand must be added}}$$