

## Activity 6 Assessment

### Investigating Equality in Equations

#### Solving for an Unknown in Multi-Step Equations

Uses 'guess and check.'

$$28 - t = 12$$

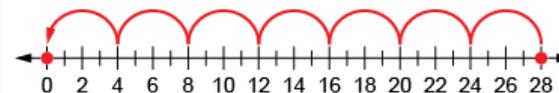
"I know  $28 - 8 = 20$ .  
So,  $t$  must be more than 8.  
 $28 - 10 = 18$  (too high)  
 $28 - 15 = 13$  (too high, but close)  
So,  $n = 16$  because  $28 - 16 = 12$ ."

Uses the balance model.

$$\begin{aligned} 18 &= d + 7 \\ 18 - 7 &= d + 7 - 7 \\ 11 &= d \end{aligned}$$

"I subtracted 7 from each side to keep the balance and to make the equation easier to solve."

Uses relationships among operations (inverse operations, associative property).



$$28 = 4x + 4$$

"I rewrote it as a subtraction equation,  
then divided both sides by 4."  
 $28 - 4 = 4x \rightarrow 24 = 4x \rightarrow 6 = x$

#### Observations/Documentation

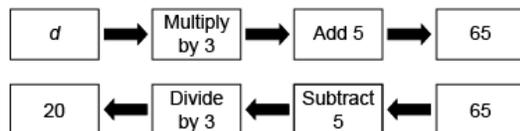
## Activity 6 Assessment

### Investigating Equality in Equations

#### Solving for an Unknown in Multi-Step Equations (cont'd)

Uses a flow chart and inverse operations.

$$3d + 5 = 65$$



"I decomposed the equation into parts, then reversed the flow using inverse operations."

Writes an equation with an unknown to solve a problem.

Chico works for a dog-walking company. Chico earns \$25 a day, plus \$5 for every dog he walks. On Thursday, Chico earned \$70. How many dogs did Chico walk?

"I let  $d$  represent the number of dogs Chico walked.  
I wrote the equation:  $70 = 25 + 5d$ ."

Flexibly uses multiple strategies to solve equations.

$$\begin{aligned}
 70 &= 25 + 5d \\
 25 + 45 &= 25 + 5d \\
 25 + 45 - 25 &= 25 + 5d - 25 \\
 45 &= 5d \\
 \frac{45}{5} &= \frac{5d}{5} \\
 9 &= d
 \end{aligned}$$

"I made the equation easier to solve by decomposing 70, subtracting 25 from each side, then dividing both sides by 5."

#### Observations/Documentation