Activity 7 Assessment
Representing Generalizations in Patterns

Solving for an Unknown in Multi-Step Equations

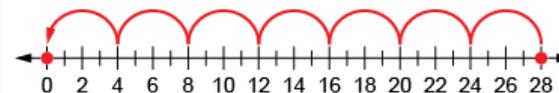| Uses 'guess and check.'	Uses the balance model.	Uses relationships among operations (inverse operations, associative property).
$28 - t = 12$ "I know $28 - 8 = 20$. So, t must be more than 8. $28 - 10 = 18$ (too high) $28 - 15 = 13$ (too high, but close) So, $n = 16$ because $28 - 16 = 12$."	$18 = d + 7$ $18 - 7 = d + 7 - 7$ $11 = d$ "I subtracted 7 from each side to keep the balance and to make the equation easier to solve."	 $28 = 4x \blacksquare + 4$ "I rewrote it as a subtraction equation, then divided both sides by 4." $28 - 4 = 4x \rightarrow 24 = 4x \rightarrow 6 = x$

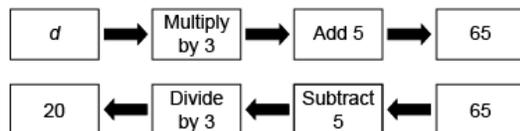## Observations/Documentation

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Activity 7 Assessment
Representing Generalizations in Patterns

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

Uses a flow chart and inverse operations.	Writes an equation with an unknown to solve a problem.	Flexibly uses multiple strategies to solve equations.

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.

$$70 = 25 + 5d$$
$$25 + 45 = 25 + 5d$$
$$25 + 45 - 25 = 25 + 5d - 25$$
$$45 = 5d$$
$$\frac{45}{5} = \frac{5d}{5}$$
$$9 = d$$

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

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