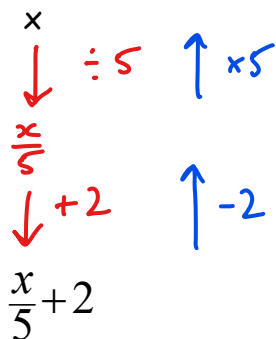


Date: \_\_\_\_\_

**KEY**

### 10.3 Notes: Solving Two Step Equations

What steps were done to "x" to turn it into " $\frac{x}{5} + 2$ "?



What steps do you think you would need to do to turn  $\frac{x}{5} + 2$  back into an x?

- ① subtract 2
- ② multiply by 5

Practice:

What steps are needed to turn each of the following back into x?

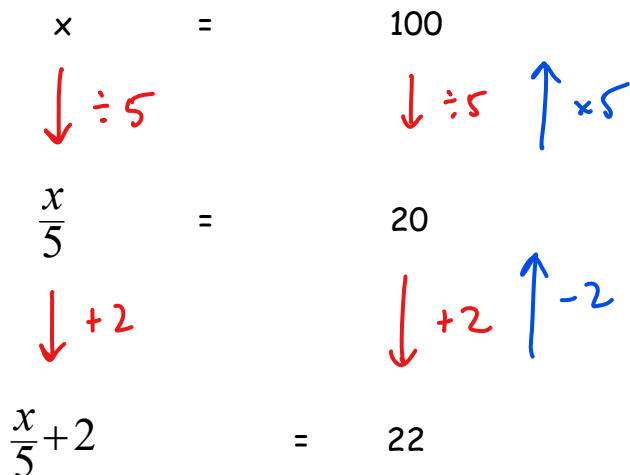
- $\frac{x}{3} + 7$
- ① subtract 7
  - ② multiply by 3

- $\frac{x}{-8} - 3$
- ① add 3
  - ② multiply by (-8)

### Solving Two Step Equations

Follow the reverse order of operations to isolate the variable on one side

Solving an equation means:  
*finding the value of the variable*



What steps were done to turn one line into the next line?

- ① divide by 5
- ② add 2

How would you go backwards and turn the last line back into the first line?

- ① subtract 2
- ② multiply by 5

Examples:

$$\frac{x}{2} = 1$$

$$\times 2 \quad \times 2$$

$$\boxed{x = 2}$$

$$\frac{-x}{3} = 5$$

$$\times 3 \quad \times 3$$

$$-x = 15$$

$$\div (-1) \quad \div (-1)$$

$$\boxed{x = -15}$$

$$\frac{x}{3} - 2 = 1$$

$$+ 2 \quad + 2$$

$$\frac{x}{3} = 3$$

$$\times 3 \quad \times 3$$

$$\boxed{x = 9}$$

$$\frac{x}{2} + 4 = 1$$

$$- 4 \quad - 4$$

$$\frac{x}{2} = -3$$

$$\times 2 \quad \times 2$$

$$\boxed{x = -6}$$

$$\frac{x}{5} + 3 = 10$$

$$- 3 \quad - 3$$

$$\frac{x}{5} = 7$$

$$\times 5 \quad \times 5$$

$$\boxed{x = 35}$$

$$\frac{-x}{2} + 6 = -3$$

$$- 6 \quad - 6$$

$$\frac{-x}{2} = -9$$

$$\times 2 \quad \times 2$$

$$-x = -18$$

$$\frac{-x}{-1} \quad \frac{-18}{-1}$$

$$\boxed{x = 18}$$

The cost for Bobby-Sue to go to the monster truck rally is \$3 less than one third of her dad's adult ticket. The cost of the child ticket is 6 dollars. How much was the adult ticket?

↳ LET  $a$  BE THE COST OF AN ADULT TICKET.

THEN: "THE COST FOR BOBBY-SUE TO GO TO THE MONSTER TRUCK RALLY" IS \$3 LESS THAN ONE THIRD OF (HER DAD'S ADULT TICKET)

↓  
THE COST OF THE CHILD TICKET IS \$6.  
↓  
6

↓  
=

↓  
 $\frac{a}{3} - 3$

↓  
 $\frac{a}{3}$

$$\text{so: } 6 = \frac{a}{3} - 3$$

$$+ 3 \quad + 3$$

$$9 = \frac{a}{3}$$

$$\times 3 \quad \times 3$$

$$\boxed{27 = a}$$

THE COST OF AN ADULT IS \$27.