

Find the area and perimeter

of the rectangle.

$$P = 48.8 \text{ cm}$$

$$A = 144.84 \text{ cm}^2$$

Simplify  $15(4a - 7) - 2(3a - 3)$

a.  $66a - 99$

b.  $54a - 99$

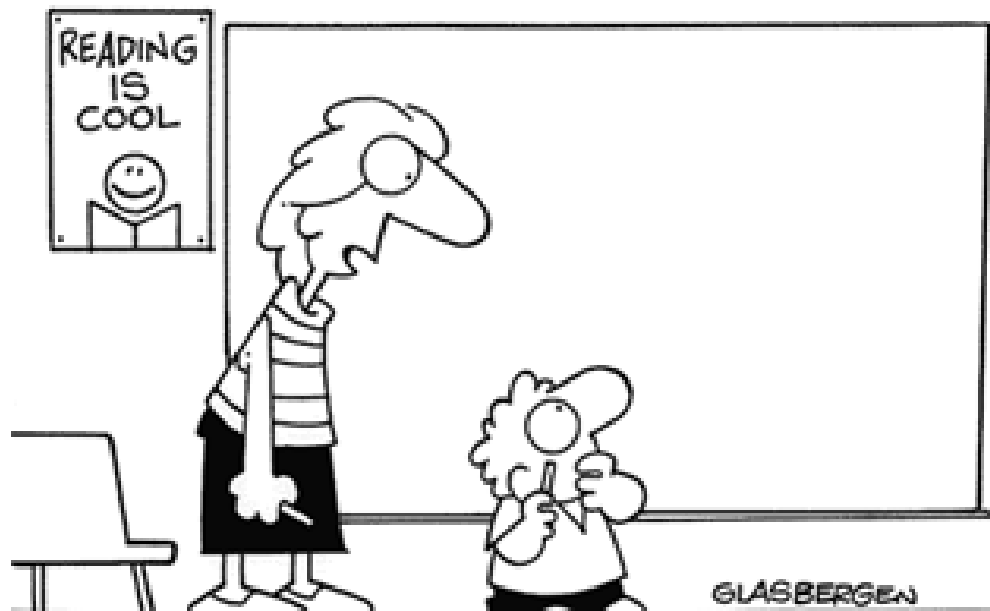
c.  $54a - 111$

d.  $66a - 99$

$60a - 105 - 6a + 6$   
 $54a - 99$

Warm up

# Solving Equations and Inequalities



**"There aren't any icons to click. It's a chalk board."**

Goals aligned to common core standards:

- You will create and solve linear equations and inequalities.

# Solving Equations

- Check your answer. You can always make sure you have the right answer. Make sure it makes sense!!!!
- Isolate the variable to one side of the equation with 1 being its coefficient by using opposite operations.

More variables, More steps!!!

Examples

$$-3(x + 5) = 3(x - 1)$$

$$\begin{array}{r} -3x - 15 = 3x - 3 \\ +3x \quad \quad +3x \end{array}$$

$$\begin{array}{r} -15 = 6x - 3 \\ +3 \quad \quad +3 \end{array}$$

$$\frac{-12}{6} = \frac{6x}{6}$$

$$-2 = x$$

# Examples

$$3(a + 1) - 5 = 3a - 2$$

$$3a + 3 - 5 = 3a - 2$$

$$\begin{array}{r} 3a - 2 = 3a - 2 \\ -3a \quad -3a \end{array}$$

$$-2 = -2 \quad \top$$

all real #s

# Examples

$$5(p + 3) + 9 = 3(p - 2) + 6$$

$$5p + 15 + 9 = 3p - 6 + 6$$

$$5p + 24 = 3p$$

$$-3p$$

$$-3p$$

$$2p + 24 = 0$$

$$-24 \quad -24$$

$$2p = -24$$

$$p = -12$$

# Examples

$$2[2 + 3(y - 1)] = 22$$

$$2(2 + 3y - 3) = 22$$

$$4 + 6y - 6 = 22$$

$$4 + 6y = 28$$

$$6y = 24$$

$$y = 4$$



# Examples

$$\frac{1}{2}(3g - 2) = \frac{3g - 2}{2}$$

Handwritten annotations: A red '2' with an arrow pointing to the denominator of the fraction. A blue '3' with a curved arrow pointing to the numerator. The expression is also written as  $3 \cdot (3g - 2) = 9g - 6$  with blue and red annotations.

$$\frac{9}{9} - \frac{6}{9} = \frac{3}{9}$$

$$\frac{1}{3} = \frac{1}{3}$$

# Examples

$$\frac{3+y}{4} = \frac{-y}{8}$$

$$8(3+y) = -4y$$

$$-3(x - 8) = 24$$

$$3(d - 8) = 3d$$

$$-4(r + 2) = 4(2 - 4r)$$



# Solving Inequalities

-Solve the inequality the same as an equation.

However, there is one  
rule!!!!!!!

When you multiply or divide both sides by a negative, you FLIP the inequality symbol.

*Examples*

$$13 - y < 29 + 2y$$

*Examples*

$$h < \frac{6h + 3}{5}$$

*Examples*

$$2(k - 1) > 8(1 + k)$$

*Examples*

$$3(2y - 4) - 2(y + 1) > 10$$



*Examples*

$$3d - 2(8d - 9) > 3 - (2d + 7)$$

$$8(t + 2) - 3(t - 4) < 5(t - 7) + 8$$

$$8n - 10 < 6 - 2n \quad 2(y - 2) > -4 + 2y$$

$$3y + 4 > 2(y + 3) + y$$



Goals aligned to common core standards:

- You will create and solve linear equations and inequalities.

**A.REI.1** Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.

**\*A.REI.3** Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.

**\*A.CED.1** Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions