TH-A1 Algebra 1 Week 11 12/1

$8(8+5m) = 4(m-2)$

$64+40m = 4m-8$

$-4m \quad -4m$

$36m = 36*m$

$64+36m = -8$

$-64 \quad -64$

$\frac{36m}{36} = \frac{-72}{36}$

$\boxed{m = -2}$

1.) $3+5(5-3b) = -5+3(4b+2)$

$3+25-15b = -5+12b+6$

$28-15b = 12b+1$

$+15b \quad +15b$

$28 = 27b+1$

$-1 \quad -1$

$\frac{27}{27} = \frac{27b}{27}$

$\boxed{1 = b}$

2.) $-8a+7(a-5) = -3(7-2a)$

$-8a+7a-35 = -21+6a$

$-a-35 = -21+6a$

$+a \quad +a$

$-35 = -21+7a$

$+21 \quad +21$

$\frac{-14}{7} = \frac{7a}{7}$

$\boxed{-2 = a}$

A train leaves the station traveling $\underline{\underline{60\ mi/h}}$.

Nate, on a big wheel tricycle, Leaves the same station traveling $80\ mi/h$ one hour later.

How long until Nate and his big wheel crashes into the train?

Train	Nate Big Wheel
$D_T = R\,T$	$D_N = R(T-1)$
$D = 60T$	

$$D_T = D_N$$

$$60T = 80(T-1)$$

Relative Rate

$$\text{Relative Rate} = 80\ mi/hr - 60\ mi/h = 20\ mi/h$$

$$\text{Head start} = 1\ hr * 60\ mi/h = 60\ mi$$

$$\frac{\text{Head start distance}}{\text{relative rate}} = \frac{60\ mi}{20\ mi/h} = \boxed{3\ \text{hours}}$$

Wicker laundry basket (obj #1) travels at 600 mi/hr (mi/hr).

bipedal, blind, arthritic fish (obj #2) traveling at 800 mi/hr (mi/hr)

Leaves after 4 hours (hr). How long until boom boom?

Head start: $600\ mi/hr * 4 = 2400\ mi$

Relative Rate: $800\ mi/hr - 600\ mi/hr = 200\ mi/hr$

$$\frac{\text{Head start}}{\text{relative rate}} = \frac{2400\ mi}{200\ mi/hr} = \boxed{12\ hrs}$$

Half eaten Boston creme pie donut travels 300 mi/hr east.

obj #1 — mi/hr

Hungry Hungry Hippos travels 400 mi/hr west.

obj #2 — mi/hr

If they leave at the same time, how long until they are 3,500 miles apart? Relative Rate: 300 + 400 = 700 mi/hr

$\frac{3{,}500 \text{ mi}}{700 \text{ mi/hr}}$ **5 hrs**