S-A1 Algebra 1 Sessim 8 7/2

1.) $8(x-3)=96$

$8x-24=96$

$+24 \quad +24$

$\frac{8x}{8}=\frac{120}{8}$

$\boxed{x=15}$

$8(x-3)=96$

$\frac{8}{8} \quad \frac{8}{8}$

$x-3=12$

$+3 \quad +3$

$\boxed{x=15}$

2.) $-4(2x-9)=-52$

$-8x+36=-52$

$-36 \quad -36$

$\frac{-8x}{-8}=\frac{-88}{-8}$

$\boxed{x=11}$

3.) $18=-5x-4$

$+4 \quad +4$

$\frac{22}{-5}=\frac{-5x}{-5}$

$\boxed{x=-\frac{22}{5} \text{ or } -4.4}$

4.) $2(5x+4)+2(-7x+8)=44$

$10x+8-14x+16=44$

$10x-14x \quad 8+16$

$-4x+24=44$

$-24 \quad -24$

$\frac{-4x}{-4}=\frac{20}{-4}$

$\boxed{x=-5}$

$\{-3^2(8)\}=$ ~~$(-3)^2(8)$~~

or

$-(3)^2(8)$

$-(9)(8)=\boxed{-72}$

$-5(5n-2)+4=-40-7n$

$-25n+10+4=-40-7n$

variables: $-25n+14=-40-7n$

$+7n \qquad +7n$ #'s

$-18n+14=-40$

$-14 \quad -14$

$\frac{-18n}{-18}=\frac{-54}{-18}$

$\boxed{n=3}$

1. Distribute "slap"
2. Simplify "combine like terms"
3. Different terms on opposite sides of the equal sign.
4. Solve.

$3x-31=7(1-5x)$

$3x-31=7-35x$

$+35x$

$38x-31=7$

$+31 \quad +31$

$\frac{38x}{38}=\frac{38}{38}$

$\boxed{x=1}$

1.) $-21 - 6n = -(6 + 4n) + n$

$-21 - 6n = -6 - 4n + n$

$-21 - 6n = -6 - 3n$

$+3n \qquad +3n$

$-21 - 3n = -6$

$+21 \qquad +21$

$-3n = 15$

$\frac{-3n}{-3} = \frac{15}{-3}$

$n = -5$

2.) $8n + 29 = -7(2n - 5) - 8(-5 + 3n)$

$8n + 29 = -14n + 35 + 40 - 24n$

$-14n + (-24n) \qquad 35 + 40$

$8n + 29 = -38n + 75$

$+38n \qquad +38n$

$46n + 29 = 75$

$-29 \qquad -29$

$\frac{46n}{46} = \frac{46}{46}$

$n = 1$

A train leaves the station traveling 60 mi/h. Nate, on his big wheel, chases after it going 80 mi/hr one hour later. How long until Nate crashes into the train?

Distance = Rate * Time

$D = rt$

Train

$D_T = r_t t_t$

Nate's Big Wheel

$D_N = R_N(t_t - 1)$

$D_T = D_N$

$r_t t_t = r_n(t_t - 1)$

$[60t = 80(t-1)]$

$60t = 80t - 80$

$-80t \quad -80t$

$\frac{-20t}{-20} = \frac{-80}{-20}$

$t = 4$

$t = 4$ is time for the train

Nate's time is $t - 1$ or $4 - 1 = 3$

1.) Find head start

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

2.) Find relative rate = $80 \text{ mi/h} - 60 \text{ mi/h} = 20 \text{ mi/hr}$

3.) Head start / relative rate $60 \text{ mi} / 20 \text{ mi/hr} = \boxed{3 \text{ hr}}$

Pencil (obj #1) travels at 200 mi/hr

iPhone 2 (obj #2) traveling at 350 mi/hr

leaves after 3 hrs. How long until boom boom.

(1.) Head start: time * Rate

$3h * 200\ mi/hr = 600\ mi$

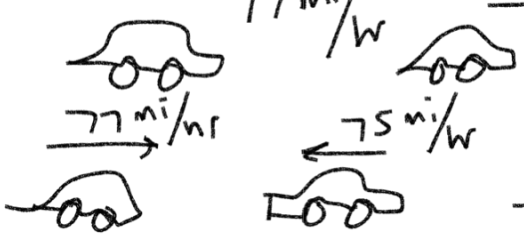
(2.) Relative rate: 2nd Rate − 1st Rate

$350\ mi/hr - 200\ mi/hr = 150\ mi/hr$

(3.) $\frac{\text{Head start}}{\text{Relative rate}} = \frac{600\ mi}{150\ mi/hr} = \boxed{4\ hrs}$

Same direction means subtract

Opposite directions means add.



$77\ mi/hr - 75\ mi/hr$

$2\ mi/hr$

$77\ mi/hr + 75\ mi/hr = 152\ mi/hr$

Nate in bananana suit (obj #1) travels at 300 mi/hr

Nana riding a 1954 vacuum cleaner (obj #2) traveling at 350 mi/hr

in the opposite direction at the same time. How long until they are 2600 miles apart.

$$\frac{\text{miles apart}}{\text{Relative Rate}} = \frac{2600 \text{ mi}}{(300 \text{ mi/hr} + 350 \text{ mi/hr})} = \frac{2600 \text{ mi}}{650 \text{ mi/hr}}$$

4 hrs