

Word Problems - Day 3

Ex 1:

Jumpstart Java sells refill mugs for \$9.50 and refills for \$2.75.
 Mocha madness sells refill mugs for \$6.00 and refills for \$3.00.
 When should you buy Jumpstart, and when should you buy Mocha?

$$C_{\text{JUMP}} = 9.50 + 2.75r \quad \textcircled{1} \quad \left\{ \begin{array}{l} \text{Let } C \text{ be cost} \\ \text{Let } r \text{ be \#refills} \end{array} \right.$$

$$C_{\text{MOCHA}} = 6 + 3r \quad \textcircled{2}$$

$$9.50 + 2.75r = 6 + 3r$$

$$3.5 = 0.25r$$

$$\frac{3.5}{0.25} = r$$

$$14 = r$$

$$\rightarrow \text{Sub } r = 14 \quad \textcircled{2}$$

$$C = 6 + 3(14)$$

$$= 48$$

\therefore Both cost \$48 @ 14 refills
 \therefore After 15 or more refills,
 Choose Jumpstart

Ex 2:

Spare Me Bowling alley charges \$6.00/game and rents shoes for \$4.75.
PINomenon charges \$6.50/game and shoe rental costs \$3.50.

Under which circumstances should you go
to "Spare Me" vs "PINomenon"?

Let C be the cost
Let g be # of games

$$\begin{array}{r} C = 6g + 4.75 \quad \textcircled{1} \\ - [C = 6.5g + 3.50] \quad \textcircled{2} \\ \hline \end{array}$$

$$\begin{array}{r} 0 = -0.5g + 1.25 \\ 0.5g = 1.25 \\ g = \frac{1.25}{0.5} \\ = 2.5 \end{array}$$

Sub in $g = 2.5$ into $\textcircled{1}$

$$C = 6(2.5) + 4.75$$

$$C = 15 + 4.75$$

$$C = 19.75$$

\therefore They have the same cost @ 2.5 games

\therefore You should go to PINomenon for
2 games or less

Ex 3:

Aquatica Boat Rentals charges \$50 per hour and a flat fee of \$75 for insurance. Jawesome Boats charges \$55 per hour and a flat fee of \$45 for insurance. Which company should you rent from?

Let C be cost
let h be # hours

$$\textcircled{1} \quad C = 50h + 75$$

$$\textcircled{2} \quad -[C = 55h + 45]$$

$$0 = -5h + 30$$

$$5h = 30$$

$$h = 6$$

\therefore Less than 6 hours,
Jawesome is
cheaper.

Ex 4:

The WCSS Student's Council organized a dance. The ticket price for WCSS students was \$5.50 and guests was \$7.00. The total receipts were \$2175.00. If 375 students attended, how many of them were guests.

Let g represent # of guests
Let x represent # of students

$$\textcircled{1} \quad g + x = 375$$

$$\textcircled{2} \quad 7g + 5.5x = 2175$$

$$\textcircled{1} \quad g = 375 - x \quad \textcircled{3}$$

Sub $\textcircled{3}$ into $\textcircled{2}$

$$7(375 - x) + 5.5x = 2175$$

$$2625 - 7x + 5.5x = 2175$$

$$2625 - 2175 = 1.5x$$

$$450 = 1.5x$$

$$\frac{450}{1.5} = x$$

$$300 = x$$

Sub $x = 300$ into $\textcircled{3}$

$$g = 375 - 300$$

$$g = 75$$

\therefore There were 75 guests

Practice

p.46 #4,10,13,14