

13. The local fall fair charges a flat fee for admission plus an additional cost for ride tickets. Last year, Kelsey purchased 15 tickets and spent a total of \$19.50. His brother Quinn purchased 36 tickets and spent a total of \$30.00 at the fair.

- Determine an equation to represent the relationship between the total amount of money spent and the number of tickets purchased.
- A ride pass, which gives a person entrance to the park and unlimited use of the rides, costs \$21. Write the equation for the relationship between the total amount spent on a ride pass and the number of rides it can be used for.
- Last year, Erin used 25 tickets at the fall fair. Should Erin purchase tickets again this year, or buy a ride pass? Explain.
- Heather only likes the fun house, which requires one ticket. She went on this ride 10 times last year. How much money would Heather save by purchasing tickets instead of a ride pass?



9d) 5.4 p. 293 #13

a)  $(\underline{15}, \underline{19.50})$  and  $(\underline{36}, \underline{30.00}) = (\# \text{ of tickets}, \text{cost})$

$$\textcircled{S1} \quad m = \frac{30 - 19.5}{36 - 15} = \frac{10.5 \times 2}{21 \times 2} = \frac{21 \div 3}{42 \div 3} = \frac{7}{14}$$

$$\therefore m = \frac{1}{2}$$

$x = \# \text{ of tickets purchased}$

$y = \text{the total cost in dollars}$

$$\therefore y = \frac{1}{2}x + b$$

$\textcircled{S2}$  use  $(36, 30)$  to solve for  $b$ .

$$30 = \frac{1(36)}{2} + b$$

$$30 = 18 + b$$

$$30 - 18 = b$$

$$12 = b$$

$$\therefore b = 12$$

$\textcircled{S3}$   $\therefore$  the equation is  $y = \frac{1}{2}x + 12$ .

$$b) y = 21 + 0x$$

$$\therefore y = 21$$

because the cost is set at \$21 for the pass.

$$c) \text{ let } x = 25$$

$$y = \frac{1(25)}{2} + 12$$

$$y = 12.5 + 12 = 24.5$$

$\therefore$  the cost for 25 tickets is \$24.50.

let  $y = 21$  to find the break-even point!

$$21 = \frac{1x}{2} + 12$$

$$21 - 12 = \frac{1x}{2}$$

$$9 = \frac{1x}{2}$$

$$18 = 1x$$

$\therefore x = 18$  is the break-even point!  
when the pass cost \$21.

Conclusions:

if  $x < 18$  then buy tickets.

if  $x = 18$  then either tickets or pass.

if  $x > 18$  then buy pass.

d) <sup>(S1)</sup> let  $x = 10$

$$y = \frac{1(10)}{2} + 12$$

$$y = 5 + 12$$

$$\therefore y = \$17$$

$$(S2) \quad \$21 - \$17 = \$4$$

$\therefore$  She saves \$4.