

Pick two points that can be used to write a linear model.

①  $T = \# \text{ of } \$ \text{ (Total pay)}$   $(H, T)$   
 $H = \# \text{ of hours}$

②  $(2, 11)$   $(5, 30)$   
 $m = \frac{\Delta T}{\Delta H} = \frac{30-11}{5-2} = \frac{19}{3} \approx 6\frac{1}{3} \text{ per hour}$

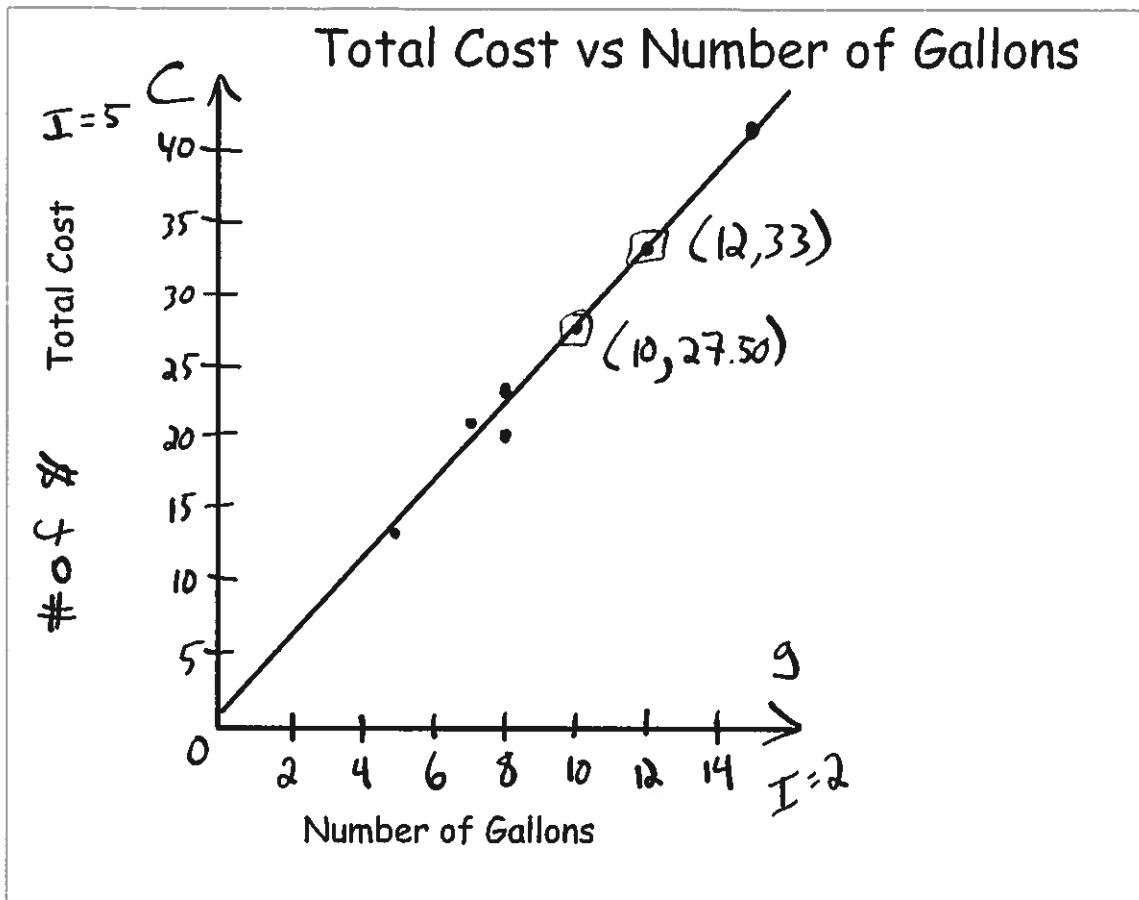
$$y = mx + b$$

$$11 = \frac{19}{3}(2) + b$$

$$\frac{33}{3} = \frac{38}{3} + b$$

$$b = -\frac{5}{3}$$

③  $T = \frac{19}{3}H + (-\frac{5}{3})$  where  
 $T$  is the total pay  
for working  $H$  hours.



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①  $g = \# \text{ of gallons}$   
 $C = \# \text{ of } \$ \text{ [Total Cost]}$   $(g, C)$

②  $(10, 27.50)$   $(12, 33)$

$$m = \frac{\Delta C}{\Delta g} = \frac{33 - 27.50}{12 - 10} = \frac{5.50}{2} = 2.75 \text{ gallon}$$

$$y = mx + b \quad 33 = 2.75(12) + b$$

$$33 = 33 + b$$

$$b = 0$$

③  $C = 2.75g$  where  $C$  is the total cost of buying  $g$  gallons.

Worksheet - Problem Solving Using Linear Models

Travis' telephone company charged him \$18.45 for 50 minutes of calls in September. In October, his bill was \$26.55 for 212 minutes of calls.

1.  $m = \# \text{ of minutes}$   
 $T = \# \text{ of } \$ \text{ (Total Bill)}$   
 $(m, T)$

2.  $(50, 18.45)$   $(212, 26.55)$   
 $m = \frac{\Delta T}{\Delta m} = \frac{26.55 - 18.45}{212 - 50} = \frac{8.10}{162}$   
 $m = 8.05 \text{ per minute}$   
 $y = mx + b$   $26.55 = .05(212) + b$   
 $26.55 = 10.60 + b$   
 $b = 15.95$

3.  $T = .05m + 15.95$  where  
 $T$  is the total cost for  
 $m$  minutes.

2.  $m = 175$   $T = .05m + 15.95$   
 $T = .05(175) + 15.95$   
 $T = 8.75 + 15.95$   
 $T = 24.70$

The monthly bill  
for 175 minutes  
of calls would be  
\$24.70.

3.  $T = 30.20$   $T = .05m + 15.95$   
 $30.20 = .05m + 15.95$   
 $14.25 = .05m$   
 $m = 285$

If the bill  
was \$30.20,  
Emily talked  
for 285 mins.

Worksheet - Problem Solving Using Linear Models

Marvin works for a painting company. He gets a base salary of \$850 and \$12.50 per hour that he paints.

1.  $P = \# \text{ of } \$ \text{ (Monthly Pay)}$   
 $H = \# \text{ of hours}$   
 $(H, P)$

2.  $m = \$2.50 \text{ per hour}$   
 $(0, 850)$

3.  $P = 12.50H + 850$  where  $P$   
is the monthly pay for  
painting  $H$  hours.

2.  $H = 124$   $P = 12.50H + 850$   
 $P = 12.50(124) + 850$   
 $P = 1550 + 850$   
 $P = 2400$

Marvin's pay for working  
124 hours in a month  
would be \$2400.

3.  $P = 2600$   $P = 12.50H + 850$   
 $2600 = 12.50H + 850$   
 $1750 = 12.50H$   
 $H = 140$

Marvin painted for 140 hours  
if his monthly pay  
was \$2600.

Assignment #26

Part I: p. 327-328 #3-9, 13-15

Part II: WS - Chapter 5 Test Review #1-6