

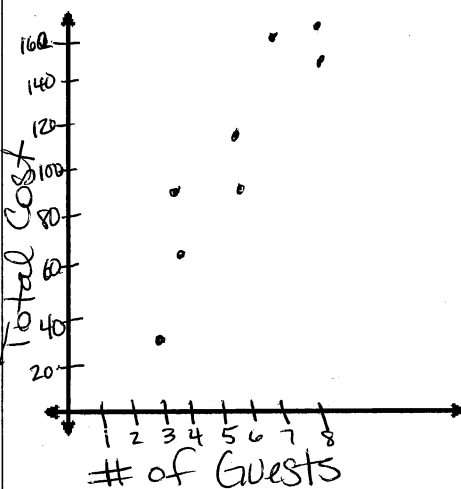
Key

Pass the Problem – Scatterplots (A.2D)

Roma had guests for dinner at her house eight times and has recorded the number of guests and the total cost for each meal in the table.

Guests	3	4	4	6	6	7	8	8
Cost (\$)	30	65	88	90	115	160	150	162

(y) cost depends of # of guests attending (x)

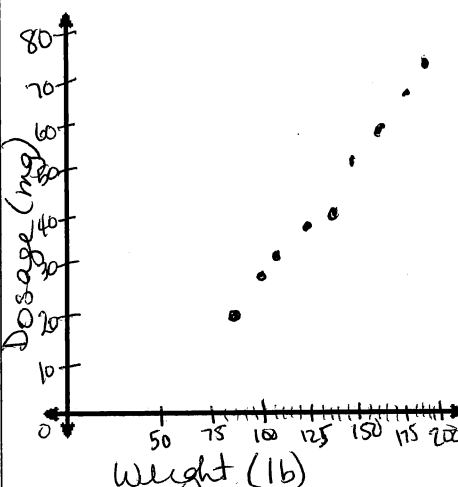
<p>Step 1</p> <p>Name: _____</p>	<p>Use your calculator to create a scatter plot of the data Sketch below. Label your axes</p> 
<p>Step 2</p> <p>Name: _____</p>	<p>Describe the correlation of the data.</p> <p>positive correlation – as the # of guests increases, the total cost increases.</p>
<p>Step 3</p> <p>Name: _____</p>	<p>Use your calculator to find a linear model for the data.</p> $y = 23.6x - 28.5$
<p>Step 4</p> <p>Name: _____</p>	<p>Based on the model, predict the cost of dinner for 11 guests.</p> $y = 23.6(11) - 28.5$ $y = 231.1$ <div style="border: 1px solid black; padding: 5px; display: inline-block;">Cost \approx \$231.10</div>
<p>Step 5</p> <p>Name: _____</p>	<p>Based on the model, predict the number of guests Roma could serve for \$200.</p> $200 = 23.6x - 28.5$ $+28.5 \quad +28.5$ <hr/> $\frac{228.5}{23.6} = \frac{23.6x}{23.6}$ $x \approx 9.68$ <div style="border: 1px solid black; padding: 5px; display: inline-block;">About 9 guests</div>

Pass the Problem – Scatterplots (A.2D)

The table below shoes the dosage of a particular medicine as related to a person's weight.

Weight (lb)	90	100	110	125	140	155	170	180	200
Dosage (mg)	20	25	30	35	40	53	60	66	75

(y) dosage depends on weight (x)

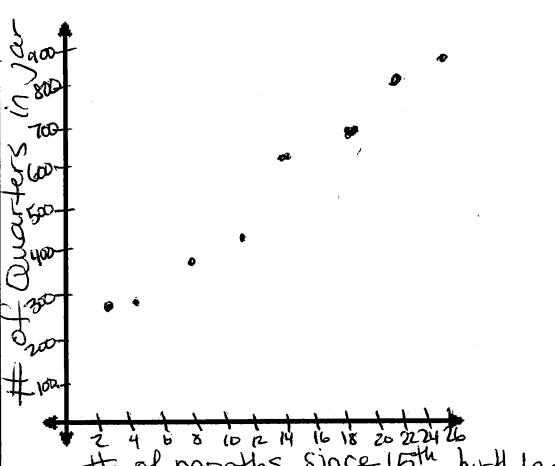
<p>Step 1</p> <p>Name: _____</p>	<p>Use your calculator to create a scatter plot of the data Sketch below. Label your axes</p> 
<p>Step 2</p> <p>Name: _____</p>	<p>Describe the correlation of the data.</p> <p>positive correlation - as the weight increases, the dosage increases.</p>
<p>Step 3</p> <p>Name: _____</p>	<p>Use your calculator to find a linear model for the data.</p> <p>$y = 0.5x - 26.8$</p> <p>$y = 0.5x - 26.8$</p>
<p>Step 4</p> <p>Name: _____</p>	<p>Based on the model, predict the dosage for a person weighing <u>240 pounds</u>.</p> <p>$y = 0.5(240) - 26.8$</p> <p>$y = 93.2$</p> <div style="border: 1px solid black; padding: 5px; display: inline-block;">about 93 mg</div>
<p>Step 5</p> <p>Name: _____</p>	<p>Based on the model, predict the weight of a person prescribed a dosage of <u>50 mg</u>.</p> <div style="display: flex; align-items: center;"> <div style="flex: 1;"> $\begin{array}{r} 50 = 0.5x - 26.8 \\ + 26.8 \quad \quad + 26.8 \\ \hline 76.8 = 0.5x \\ \frac{76.8}{0.5} = \frac{0.5x}{0.5} \\ x = 153.6 \end{array}$ </div> <div style="flex: 1; border: 1px solid black; padding: 10px; display: inline-block;">about 154 pounds</div> </div>

Pass the Problem – Scatterplots (A.2D)

On Penny's 15th birthday, her grandmother gave her a large jar of quarters. Penny decided to continue to save quarters in the jar. Every few months she counts her quarters and records the results.

Number of months since her 15 th birthday	3	5	8	12	15	19	22	26
Number of quarters	270	275	376	420	602	684	800	830

(y) # of Quarters depends on time (x)

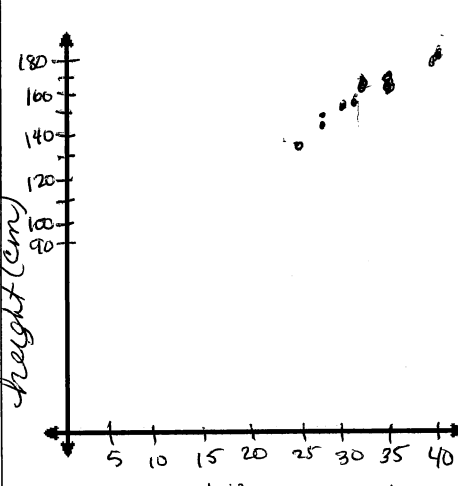
<p>Step 1</p> <p>Name: _____</p>	<p>Use your calculator to create a scatter plot of the data Sketch below. Label your axes</p> 
<p>Step 2</p> <p>Name: _____</p>	<p>Describe the correlation of the data.</p> <p>positive correlation - as the # of months increases, the # of Quarters in the jar also increases.</p>
<p>Step 3</p> <p>Name: _____</p>	<p>Use your calculator to find a linear model for the data.</p> $y = 27.1x + 158.9$
<p>Step 4</p> <p>Name: _____</p>	<p>Based on the model, predict the number of quarters Penny will have on her 18th birthday.</p> <p>3 years = 36 months</p> $y = 27.1(36) + 158.9$ $y = 1134.5$ <p>about 1135 Quarters</p>
<p>Step 5</p> <p>Name: _____</p>	<p>Based on the model, predict when Penny will have 1000 quarters.</p> $1000 = 27.1x + 158.9$ $-158.9 \quad -158.9$ $\frac{841.1}{27.1} = \frac{27.1x}{27.1} \quad x \approx 31.0$ <p>About 31 months after her 15th birthday</p>

Pass the Problem – Scatterplots (A.2D)

Anthropologists use known relationships between the height and length of a woman's humerus bone, the bone between the elbow and the shoulder, to estimate a woman's height.

Humerus Length (cm)	35	27	30	33	25	39	27	31
Height (cm)	167	146	154	165	140	180	149	155

length of humerus depends on height
(y) height depends on length of humerus bone (x) ✓

<p>Step 1</p> <p>Name: _____</p>	<p>Use your calculator to create a scatter plot of the data Sketch below. Label your axes</p> 
<p>Step 2</p> <p>Name: _____</p>	<p>Describe the correlation of the data.</p> <p>positive correlation — as the length of the humerus bone increases, the height increases.</p>
<p>Step 3</p> <p>Name: _____</p>	<p>Use your calculator to find a linear model for the data.</p> <p>$y = 2.8x + 71.97$ $y = 2.8x + 72$</p>
<p>Step 4</p> <p>Name: _____</p>	<p>Based on the model, predict the height of a woman with a humerus length of <u>32 cm</u>.</p> <p>$y = 2.8(32) + 72$ $y = 161.6$</p> <p>About 161.6 cm</p>
<p>Step 5</p> <p>Name: _____</p>	<p>Based on the model, predict the humerus length of a <u>185 cm</u> woman.</p> <p>$185 = 2.8x + 72$ $-72 \quad -72$ $113 = 2.8x$ $\frac{113}{2.8} = \frac{2.8x}{2.8}$ $40.4 \approx x$</p> <p>About 40.4 cm</p>

$$40.4 \approx x$$