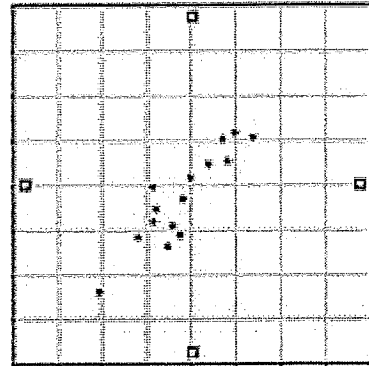


Integrated I

Chapter 4 Cumulative Review

1. The graph at right shows the relationship between shoe size and height in adult males. Describe the relationship shown in the scatter plot.



2. Discuss the meaning of each of the following situations.

a. A residual is negative.

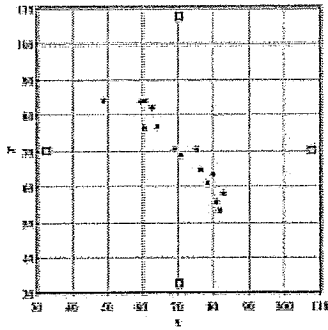
b. A residual is zero.

c. If someone told you they calculated the LSRL for a set of data and all of the residuals were positive, what would you tell them?

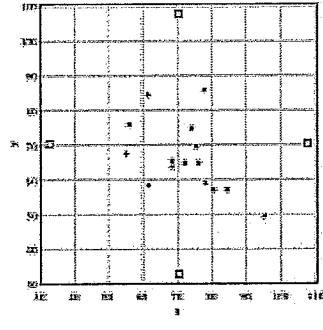
d. If the correlation coefficient for a set of data is 1, what would the residual plot look like?

Match the scatterplot with its correlation coefficient.

3.



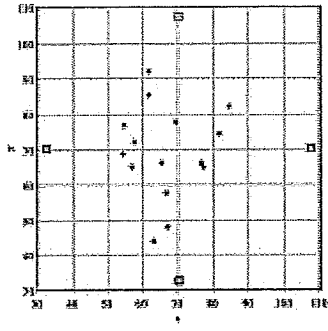
4.



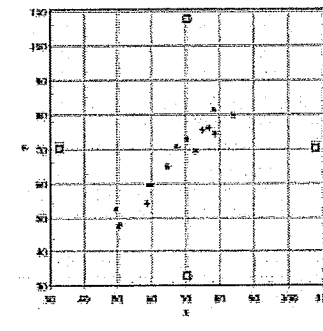
Possible  
Correlation Coefficients

- a. 0.05
- b. 0.97
- c. -0.94
- d. -0.49
- e. 0.68

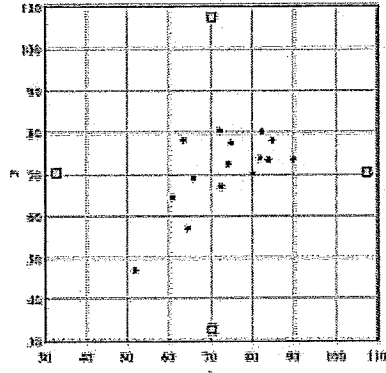
5.



6.



7.



Write the slope-intercept form of the equation of the line through the given points.

8) through:  $(-2, 1)$  and  $(4, -1)$

9) through:  $(2, -2)$  and  $(-2, 2)$

Write the slope-intercept form of the equation of the line described.

10) through:  $(3, 5)$ , parallel to  $y = \frac{8}{7}x + 1$

11) through:  $(5, 1)$ , parallel to  $y = -\frac{1}{4}x + 3$

12) through:  $(-1, -4)$ , perpendicular to  $y = \frac{1}{2}x + 2$

13) through:  $(-4, -1)$ , perpendicular to  $y = 4x + 1$

Solve each equation.

14)  $-2(7 - m) = -7(2 - 4m)$

15)  $-3(-7 + 4r) = -3(r - 4)$

16)  $\frac{2 - x}{4} = 8 + \frac{x}{12}$

17)  $12 = \frac{x}{2} + 7$

18)  $4^{2p} = 32^{-3p-1}$

19)  $216^{2a} = 36$

Simplify. Your answer should contain only positive exponents.

20)  $2u^0v^3 \cdot 2v^4$

21)  $3a^4b^2 \cdot 2b^3$

22)  $(3nm^2)^{-2}$

23)  $(2xy^0)^0$

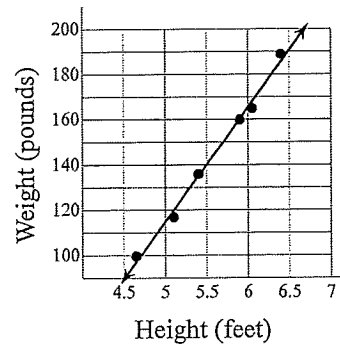
24)  $\frac{4x^{-3}y^0}{4x^4}$

25)  $\frac{2x^2y^2}{xy^2}$

26) The height and weight of several adults were recorded:

Height (ft)	Weight (lbs)
4.65	99.8
5.1	117
5.4	136
5.9	160
6.05	165
6.4	189

It was discovered that this can be modeled by the equation  $y = 50.6x - 138$  where  $x$  is height in feet and  $y$  is weight in pounds.



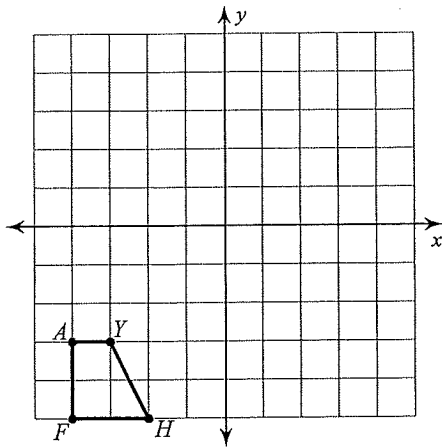
a) What does the slope of the line represent?

b) What does the y-intercept of this function represent?

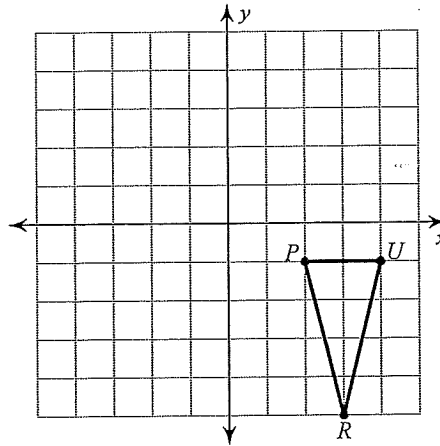
c) Using this model, what would be the weight of someone who is 4.95 ft tall? Round your answer to the nearest tenth.

Graph the image of the figure using the transformation given.

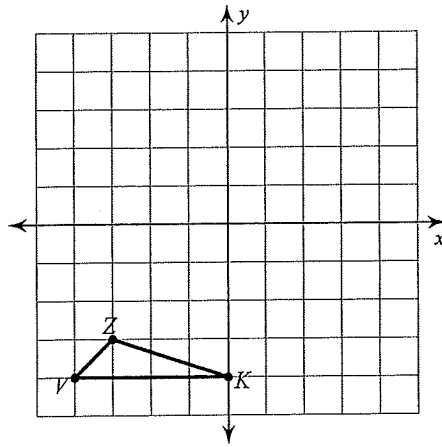
27) reflection across  $y = -x$



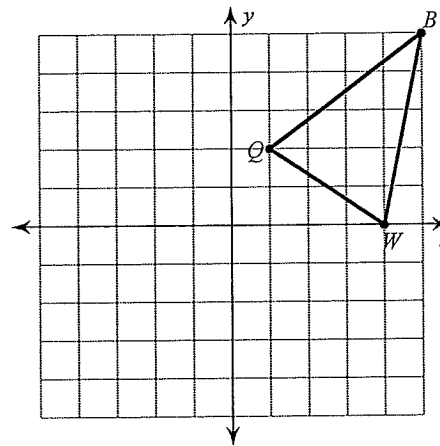
28) reflection across  $x = 1$



29) rotation  $90^\circ$  counterclockwise about the origin



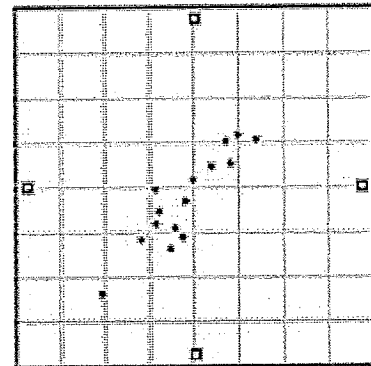
30) reflection across  $y = x$



Integrated I

Chapter 4 Cumulative Review

1. The graph at right shows the relationship between shoe size and height in adult males. Describe the relationship shown in the scatter plot.



Positive, moderately strong linear association with no apparent outliers.

2. Discuss the meaning of each of the following situations.  
a. A residual is negative.

The LSRL over-predicts the actual amount.

b. A residual is zero.

The LSRL prediction is the same as the actual data.

c. If someone told you they calculated the LSRL for a set of data and all of the residuals were positive, what would you tell them?

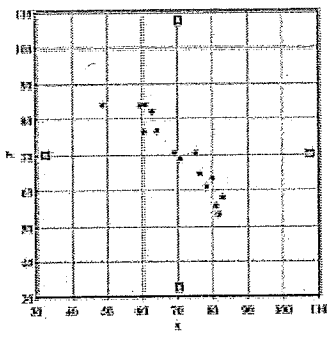
The LSRL must not correct. To minimize the sum of the squares of the residuals, some data points will be above the LSRL and some will be below.

d. If the correlation coefficient for a set of data is 1, what would the residual plot look like?

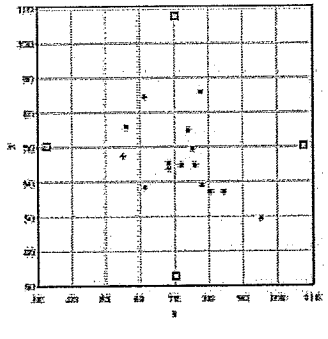
The residual plot would have all of its data points on the x-axis.

Match the scatterplot with its correlation coefficient.

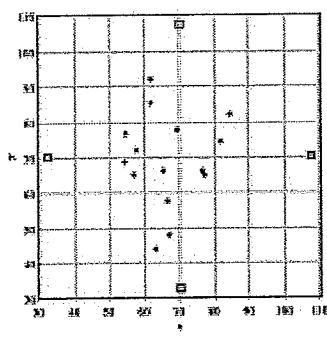
3.



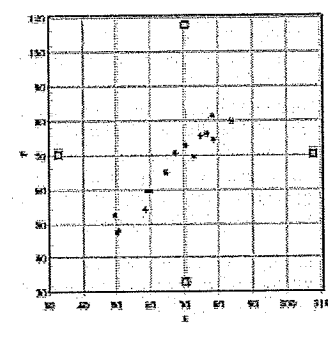
4.



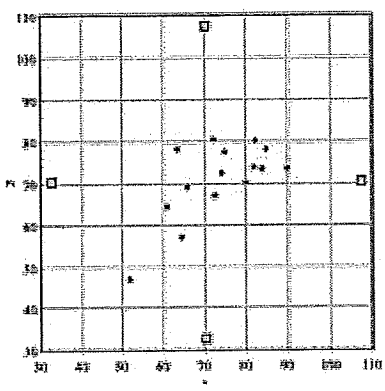
5.



6.



7.



Possible  
Correlation Coefficients

- a. 0.05
- b. 0.97
- c. -0.94
- d. -0.49
- e. 0.68

3. c

4. d

5. a

6. b

7. e

Write the slope-intercept form of the equation of the line through the given points.

8) through:  $(-2, 1)$  and  $(4, -1)$

$$y = -\frac{1}{3}x + \frac{1}{3}$$

9) through:  $(2, -2)$  and  $(-2, 2)$

$$y = -x$$

Write the slope-intercept form of the equation of the line described.

10) through:  $(3, 5)$ , parallel to  $y = \frac{8}{7}x + 1$

$$y = \frac{8}{7}x + \frac{11}{7}$$

11) through:  $(5, 1)$ , parallel to  $y = -\frac{1}{4}x + 3$

$$y = -\frac{1}{4}x + \frac{9}{4}$$

12) through:  $(-1, -4)$ , perpendicular to  $y = \frac{1}{2}x + 2$

$$y = -2x - 6$$

13) through:  $(-4, -1)$ , perpendicular to  $y = 4x + 1$

$$y = -\frac{1}{4}x - 2$$

Solve each equation.

14)  $-2(7 - m) = -7(2 - 4m)$

$$\{0\}$$

15)  $-3(-7 + 4r) = -3(r - 4)$

$$\{1\}$$

16)  $\frac{2 - x}{4} = 8 + \frac{x}{12}$

$$\{-22.5\}$$

17)  $12 = \frac{x}{2} + 7$

$$\{10\}$$

18)  $4^{2p} = 32^{-3p-1}$

$$-5/19$$

19)  $216^{2a} = 36$

$$1/3$$



Simplify. Your answer should contain only positive exponents.

$$20) \frac{2u^0 v^3 \cdot 2v^4}{4v^7}$$

$$21) \frac{3a^4 b^2 \cdot 2b^3}{6a^4 b^5}$$

$$22) \frac{(3nm^2)^{-2}}{9n^2 m^4}$$

$$23) \frac{(2xy^0)^0}{1}$$

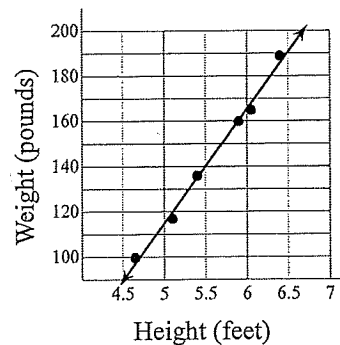
$$24) \frac{4x^{-3} y^0}{4x^4} = \frac{1}{x^7}$$

$$25) \frac{2x^2 y^2}{xy^2} = 2x$$

26) The height and weight of several adults were recorded:

Height (ft)	Weight (lbs)
4.65	99.8
5.1	117
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6.05	165
6.4	189

It was discovered that this can be modeled by the equation  $y = 50.6x - 138$  where  $x$  is height in feet and  $y$  is weight in pounds.



a) What does the slope of the line represent?

The number of pounds heavier an adult one foot taller would weigh

b) What does the y-intercept of this function represent?

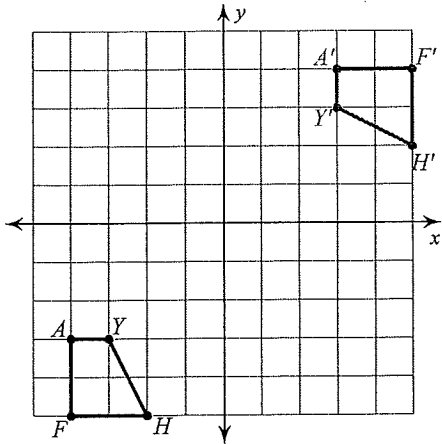
The weight of an adult zero feet tall

c) Using this model, what would be the weight of someone who is 4.95 ft tall? Round your answer to the nearest tenth.

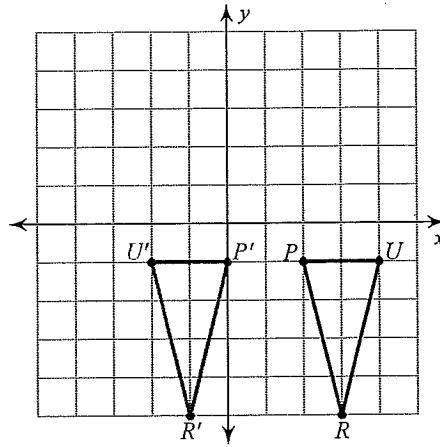
112.5 lbs

Graph the image of the figure using the transformation given.

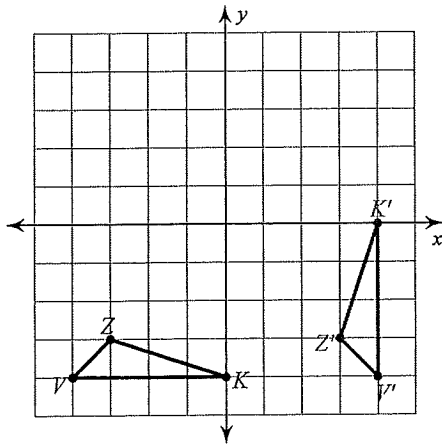
27) reflection across  $y = -x$



28) reflection across  $x = 1$



29) rotation  $90^\circ$  counterclockwise about the origin



30) reflection across  $y = x$

