Today's Plan:

Learning Target (standard): I will use the measures of center to describe a data set.

Students will: Complete practice problems over previous concepts at the boards, put up homework problems on the board and make necessary corrections to their own work, take notes over new material and complete practice problems over new concepts.

Teacher will: Provide practice problems over previous concepts, check homework problems for accuracy and provide students feedback, describe and provide examples of new concepts and assign students assessment problems over new concepts.

Assessment: Board work, homework check and homework assignment

Differentiation: Students will work at the board, go over and correct homework at their seats, actively engage in lecture over new concepts, practice new concepts with the aid of other students and the teacher and complete homework assignment.

NAME _____?_____   #145

BELL RINGER   0:00:00

$5(1) - 3(-2) \overset{?}{=} 11$
$5 + 6 = 11 \checkmark$

1.) Tell whether (1, –2) is a solution of the system of linear equations.   ?
$5x - 3y = 11$
$2x + 3y = -4$

$2(1) + 3(-2) \overset{?}{=} -4$ (yes)
$2 - 6 = -4 \checkmark$

2.) Graph $y = -2x + 1$.
$m = -2 \quad I_y : (0,1)$

3.) Solve $7 < 5x + 2 < 11$.
Write the solution as a set and interval. Graph the solution.

$5 < 5x < 9$

$1 < x < \dfrac{9}{5}$

$\left\{ x \mid 1 < x < \dfrac{9}{5} \right\}$ $\left(1, \dfrac{9}{5} \right)$

Graph by hand.

$f(x) = x^2 - 10x + 24$

1) opens up → minimum

2) vertex: $(5, -1)$

$x = -\frac{b}{2a} = \frac{10}{2(1)} = \frac{10}{2} = 5$

$f(5) = (5)^2 - 10(5) + 24$

$\quad = 25 - 50 + 24$

$f(5) = -1$

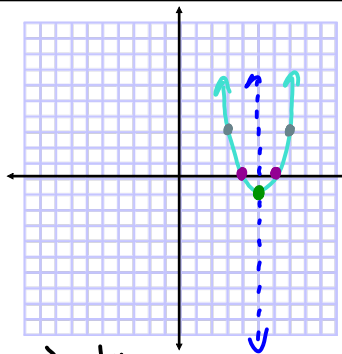3) AOS: $x = 5$

4) I_x: $(4, 0), (6, 0)$

$x^2 - 10x + 24 = 0$

$\overset{24}{\wedge}$

$-6 + 4 = -10$

$x^2 - 6x - 4x + 24 = 0$

$x(x-6) - 4(x-6) = 0$

$(x-6)(x-4) = 0$

$x = 6, 4$

5)

x	y
3	3
4	0
5	-1
6	0
7	3

$f(3) = (3)^2 - 10(3) + 24$

$\quad = 9 - 30 + 24$

$f(3) = 3$

$\frac{10}{2} = 5 \to 25$

$x^2 - 10x + 25 = -1 + 25$

$(x-5)^2 = \pm\sqrt{1}$

$x - 5 = 1, -1$

$x = 6, 4$

Evaluate using by hand.

$f(x) = 2x^2 - x + 2 \qquad g(x) = -4x + 3$

$3\,g(-3) - 2\,f(4)$

$g(-3) = -4(-3) + 3$

$\quad = 12 + 3$

$g(-3) = 15$

$f(4) = 2(4)^2 - 4 + 2$

$\quad = 32 - 4 + 2$

$f(4) = 30$

$-2f(4) = -2(30)$

$-2f(4) = -60$

$3g(-3) = 3(15)$
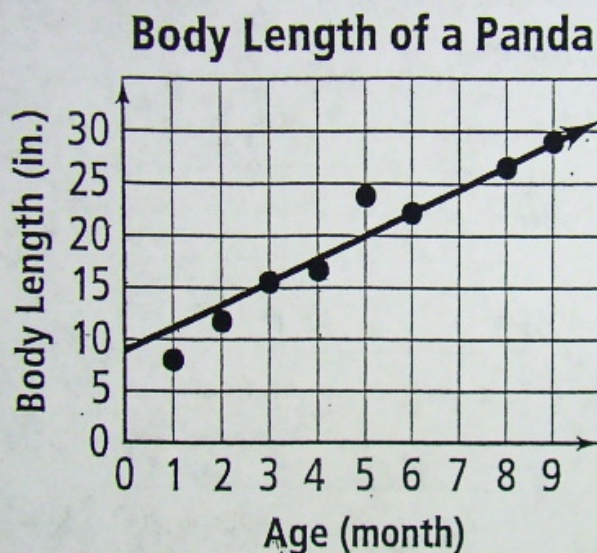
$3g(-3) = 45$

$3g(-3) - 2f(4) = 45 - 60$

$3g(-3) - 2f(4) = -15$

Correlation: "slope of scatterplot"

- correlation coefficient (r)

    > strength of a linear relationship between 2 quantities

    > r = 1 perfect (+)

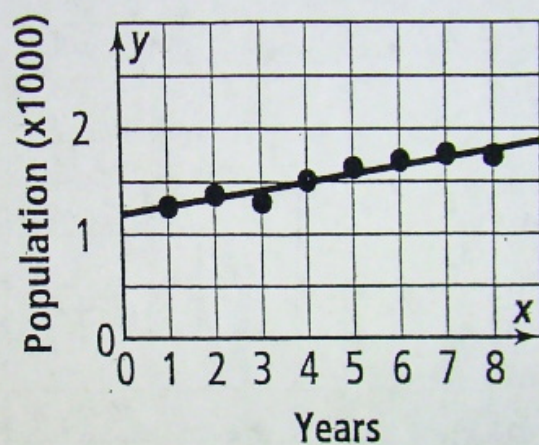   > r = -1 perfect (-)

    > r = 0 no linear relationship

$$-1 \leq r \leq 1$$

Body Length of a Panda
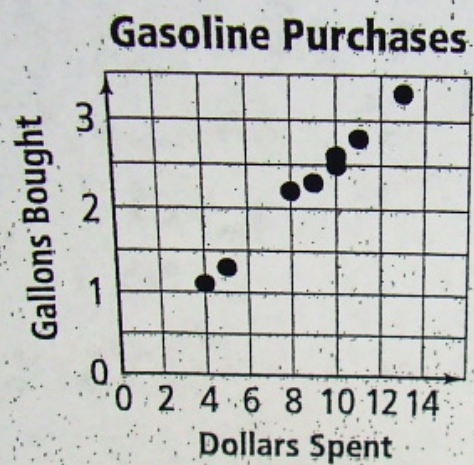
Positive Correlation

r ≈ 0.9

2.
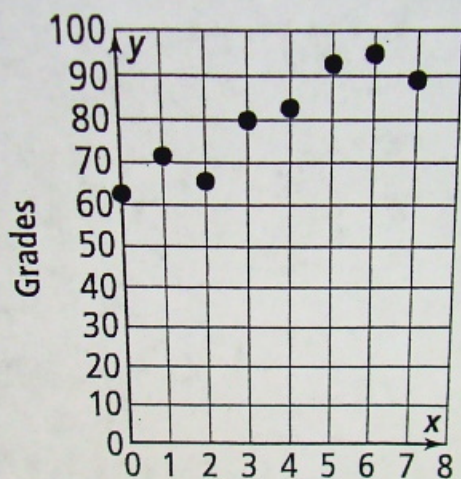

Positive Correlation

$r \approx 1$

3.

Positive Correlation

$r \approx 0.8$

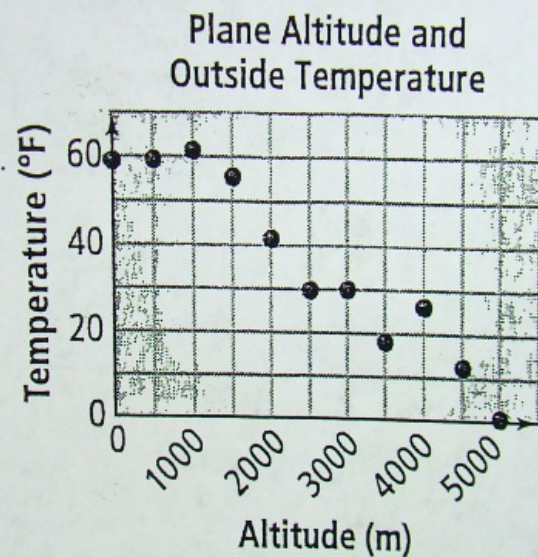Positive Correlation

r ≈ 0.5

Negative Correlation

r ≈ -0.8

Plane Altitude and
Outside Temperature
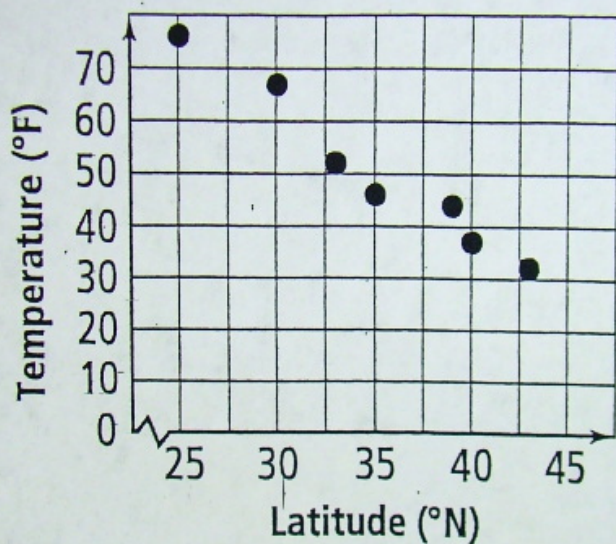
Negative Correlation

r ≈ -0.6

Measures of Center:

Mean - the *average* of a data set

Mean = <u>sum of the data values</u>
          total number of data values

* used to describe the middle of a data
set that does not have an outlier *

Measures of Center:

Median - the *middle* of a data set when the values are arranged in order

* if there are an even number of terms, find the average of the two middle numbers *

* used to describe the middle of a data set that does have an outlier *

Measures of Center:

Mode - the most frequently occurring data point

* a data set can have no mode, one mode, or more than one mode *

* use when the data are non-numeric or when choosing the most popular item *

nd the mode, median, and mean for each data set.

Shoe Size

8	8.5	9	8.5	12	6.5
8	8.5	9.5	8.5	6.5	6.5
4	9	8.5	7		

② $\text{mean}(\bar{x}) = \dfrac{125.5}{16}$

$= 7.844$

① $4, 6.5, 6.5, 6.5, 6.5, 7, 8, 8, 8.5, 8.5,$

$8.5, 8.5, 8.5, 9, 9, 12$

② $\text{median} = \dfrac{8 + 8.5}{2} = \dfrac{16.5}{2} = 8.25$

③ $\text{mode} = 8.5$

Educational Attainment by US State

State	% Bachelor's Degree	State	% Bachelor's Degree	State	% Bachelor's Degree
South Dakota	25.1	Arkansas	18.9	Texas	28.5
Missouri	26.2	Mississippi	19.6	Alaska	26.6
North Carolina	26.5	Wyoming	24.6	Iowa	25.1
Ohio	24.1	West Virginia	17.3	New York	32.4
Utah	28.5	Kansas	29.5	Georgia	27.5
Maine	26.9				

① $17.3, 18.9, 19.6, 24.1, 25.1, 25.1, 25.2$

$25.5, 26.5, 26.6, 26.9, 27.5, 28.5$

$29.5, 32.4, 34.5$

② $\text{mean}(\bar{x}) = \dfrac{413.2}{16} = 25.825\%$

③ $\text{median} = \dfrac{25.5 + 26.5}{2} = 26\%$

④ $\text{mode} = 25.1\%$

#Words	Frequency
1	1
2	5
3	4
4	3
5	1
6	1

① $1, 2, 2, 2, 2, 2, 3, 3, 3, 3,$

$4, 4, 4, 5, 6$

② $\text{mean}(\bar{x}) = \dfrac{46}{15} = 3.067 \text{ words}$

③ $\text{median} = 3 \text{ words}$

④ $\text{mode} = 2 \text{ words}$

Assignment:

Measures of Center
#1-8

* write the data in numerical order
first and then find the mean, median
and mode of each data set *