

**Applied Technical Math 10/12**

**Warm Up  
AIMS Web  
with Calc 3**

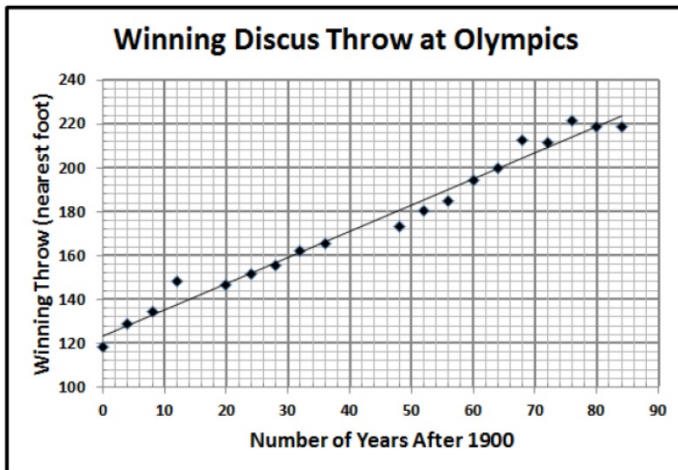
I can use linear regression to find the line of best fit and to make predictions

The winning Olympic discus throw is recorded through the 1900's rounded to the nearest foot.

Round slopes and y-intercepts to 2 decimal places

- Consider 1900 to be year 0 and find the equation for the trend line using the regression feature of your graphing calculator.
- Use your regression equation to predict the winning throw at the 2020 Olympics, accurate to the tenth place.
- Use your regression equation to predict the year the winning throw will reach 280 feet, accurate to the nearest year.

Year	Throw (ft)
<del>1900</del> 0	118
<del>1904</del> 4	129
1908 8	134
<del>1912</del> 12	148
<del>1920</del> 20	147
<del>1924</del> 24	151
1928 28	155
<del>1932</del> 32	162
<del>1936</del> 36	166
<del>1948</del> 48	173
<del>1952</del> 52	181
<del>1956</del> 56	185
1960 60	194
<del>1964</del> 64	200
<del>1968</del> 68	213
<del>1972</del> 72	211
<del>1976</del> 76	221
<del>1980</del> 80	219
<del>1984</del> 84	219



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Round slopes and y-intercepts to 2 decimal places

- a) Consider 1900 to be year 0 and find the equation for the trend line using the regression feature of your graphing calculator.

$$y = 1.20x + 123.17$$

$$r = 0.98997529$$

Year	Throw (ft)
1900	118
1904	129
1908	134
1912	148
1920	147
1924	151
1928	155
1932	162
1936	166
1948	173
1952	181
1956	185
1960	194
1964	200
1968	213
1972	211
1976	221
1980	219
1984	219

$$y = 1.1963x + 123.1700$$

$$y = 1.20x + 123.17$$

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- b) Use your regression equation to predict the winning throw at the 2020 Olympics, accurate to the tenth place.

$$\begin{array}{r} 110 \\ 2020 \\ -1900 \\ \hline 120 \end{array}$$

$$y = 266.73$$

$$2020 - 1900 = 120 \text{ years}$$

Using the equation from a),  
substitute 120 in for  $x$ , solve for  $y$ .

$$y = 1.20 \cdot 120 + 123.17$$

$$y = 267.17$$

$$y = 267.2 \text{ ft}$$

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- c) Use your regression equation to predict the year the winning throw will reach 280 feet, accurate to the nearest year.

131.09

Using the equation from a),  
substitute 280 in for  $y$ , solve for  $x$ .  
 $280 = 1.20x + 123.17$   
 $x = 130.6916$   
 $x = 131$  years after 1900  
 $1900 + 131 = 2031$

I can use linear regression to find the line of best fit and to make predictions

# Hmwk Pg 34

## #8-13

# Quiz 1.3 Tomorrow