

S.ID.6: Regression 2

- 1 The table below shows the minimum hourly wage, in U.S. dollars, for selected years since 1955.

Years Since 1955 (x)	0	5	10	15	20	25	30	35	40	45	50
Minimum Wage (y)	.75	1.00	1.25	1.45	2.00	3.10	3.35	3.80	4.25	5.15	5.15

Write the linear regression equation for this set of data, rounding all values to *three decimal places*. State the strength and direction indicated by the correlation coefficient.

- 2 The table below shows the attendance at a museum in select years from 2007 to 2013.

Year	2007	2008	2009	2011	2013
Attendance (millions)	8.3	8.5	8.5	8.8	9.3

State the linear regression equation represented by the data table when $x = 0$ is used to represent the year 2007 and y is used to represent the attendance. Round all values to the *nearest hundredth*. State the correlation coefficient to the *nearest hundredth* and determine whether the data suggest a strong or weak association.

- 3 Erica, the manager at Stellarbeans, collected data on the daily high temperature and revenue from coffee sales. Data from nine days this past fall are shown in the table below.

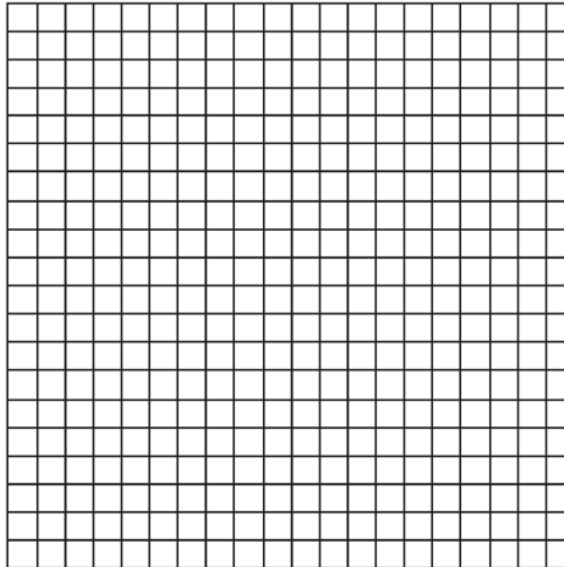
	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9
High Temperature, t	54	50	62	67	70	58	52	46	48
Coffee Sales, $f(t)$	\$2900	\$3080	\$2500	\$2380	\$2200	\$2700	\$3000	\$3620	\$3720

State the linear regression function, $f(t)$, that estimates the day's coffee sales with a high temperature of t . Round all values to the *nearest integer*. State the correlation coefficient, r , of the data to the *nearest hundredth*. Does r indicate a strong linear relationship between the variables? Explain your reasoning.

- 4 Two different tests were designed to measure understanding of a topic. The two tests were given to ten students with the following results:

Test x	75	78	88	92	95	67	58	72	74	81
Test y	81	73	85	88	89	73	66	75	70	78

Construct a scatter plot for these scores, and then write an equation for the line of best fit (round slope and intercept to the *nearest hundredth*). Find the correlation coefficient. Predict the score, to the *nearest integer*, on test y for a student who scored 87 on test x .



S.ID.6: Regression 2 Answer Section

1 ANS:

$y = 0.098x + 0.402$ high, positive correlation

REF: 011736a2

2 ANS:

$y = 0.16x + 8.27$ $r = 0.97$, which suggests a strong association.

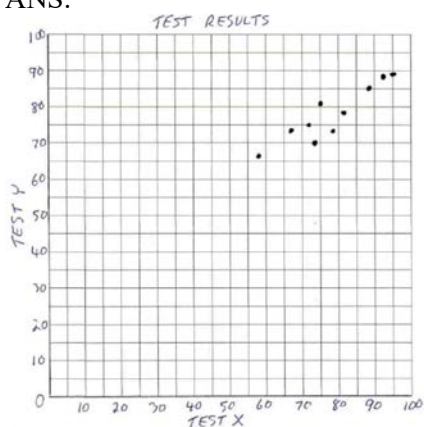
REF: 081536ai

3 ANS:

$f(t) = -58t + 6182$ $r = -0.94$ This indicates a strong linear relationship because r is close to -1.

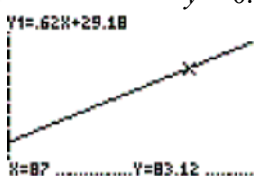
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4 ANS:



$y = 0.62x + 29.18, r = 0.92, 83.$

```
WINDOW
Xmin=50
Xmax=100
Xscl=1
Ymin=50
Ymax=100
Vsc1=
Xres=1
```



```
CATALOG
Degree
DelVar
DependAsk
DependAuto
det(
DiagnosticOff
DiagnosticOn
LinReg
y=ax+b
a=.6232993197
b=29.18265306
r^2=.8373870993
r=.9150885745
```

REF: 010234b