

1. Canada's total land area is approximately 10,000,000 square kilometers. If Canada's current population is 34.88 million, what is Canada's per capita area?

↳ 10 million ☺

$$\frac{10}{34.88} = 0.2867$$

0.29 km² per capita ☺

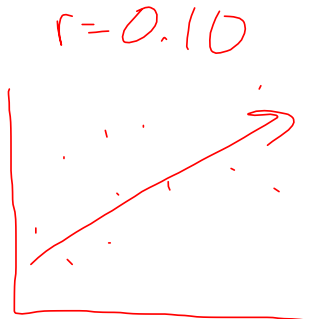
2. On June 16, 2004, average gas prices were 86.7 cents / litre. Today the average price of gas is 135.5 cents / litre. Determine the percent change in gas prices over this 10 year period.

$$\% \text{ change} = \frac{135.5 - 86.7}{135.5} \times 100$$

$$= 36\% \text{ (increase)}$$

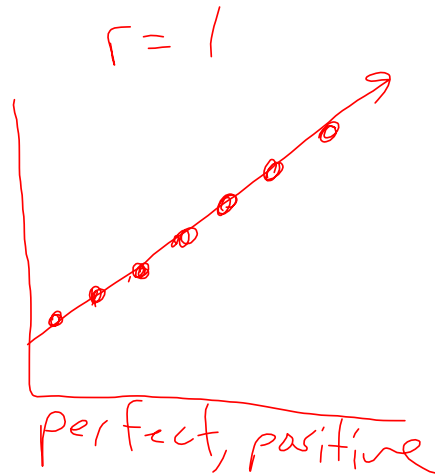
3. Draw a rough sketch of a graph that would correspond to each correlation coefficient, r .

$r = 0.10$



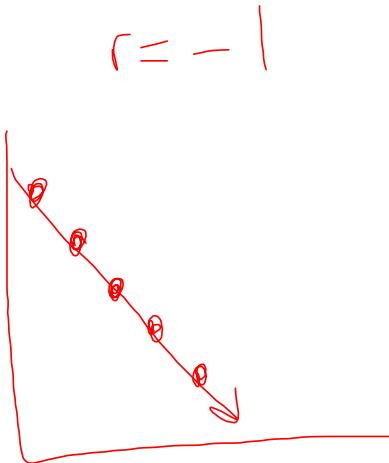
weak, positive

$r = 1$



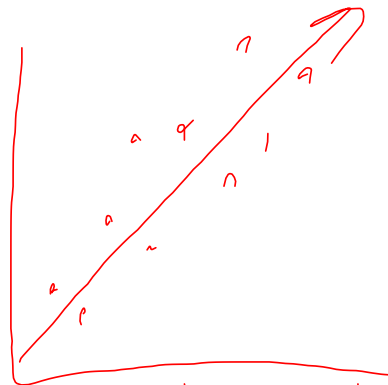
perfect, positive

$r = -1$



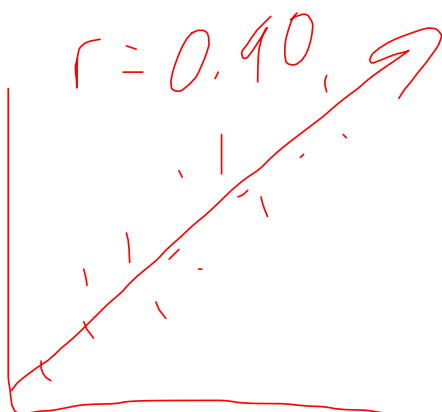
perfect, negative

$r = -0.50$



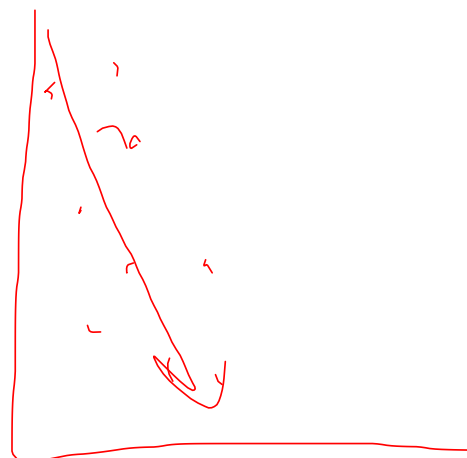
moderate, positive

$r = 0.90$



strong, positive

$r = -0.8$



strong, negative

4. The table of values below shows the grades and absences for a class of 19 students. The class data is sorted by grade.

| Student | Grade (%) | Number of Absences |
|---------|-----------|--------------------|
| 1 | 47 | 30 |
| 2 | 47 | 32 |
| 3 | 47 | 8 |
| 4 | 51 | 6 |
| 5 | 52 | 27 |
| 6 | 57 | 21 |
| 7 | 65 | 15 |
| 8 | 69 | 14 |
| 9 | 69 | 18 |
| 10 | 75 | 3 |
| 11 | 75 | 8 |
| 12 | 76 | 4 |
| 13 | 80 | 1 |
| 14 | 85 | 8 |
| 15 | 85 | 2 |
| 16 | 85 | 7 |
| 17 | 85 | 9 |
| 18 | 87 | 14 |
| 19 | 90 | 3 |

a. Pose, and answer, a one-variable question.

b. Student #3 has gone home and claimed to their parents that they are in the 50th percentile of the class. Explain their error and determine their actual percentile rank.

c. Determine what grade is in the 85th percentile of this course

d. In this course, final grades were based on a 70% term mark, 10% culminating activity and a 20% final exam. If the student scored 444/700 marks through the term, 123/200 on their culminating activity and 65/175 on the final exam, what is their final grade?

a) What's the average grade?

$$\frac{1327}{19} = 69.8\%$$

b)

$$P = \frac{L + 0.5E}{N} \times 100$$

$$= \frac{2 + 0.5(3)}{19}$$

$$= 0.164 \times 100$$

$$= 16.4$$

$$= 16.4^{\text{th}} \text{ percentile}$$

$$c) n \times P = 19 \times 0.85$$

$$= 16.15 \Rightarrow 17^{\text{th}} \text{ person}$$

the grade is 85%

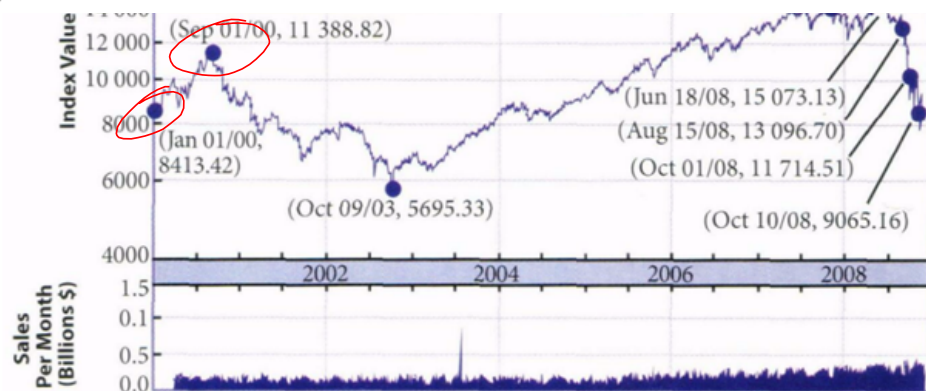
d. In this course, final grades were based on a 70% term mark, 10% culminating activity and a 20% final exam. If the student scored 444/700 marks through the term, 123/200 on their culminating activity and 65/175 on the final exam, what is their final grade?

$$\left(\frac{444}{700} \times 0.7 + \frac{123}{200} \times 0.1 + \frac{65}{175} \times 0.2 \right) \times 100$$

59%

OR
change 0.7, 0.1, 0.2 to 70, 10, 20

- b. If you invested \$1,000,000 on October 1, 2008 in a fund that mirrors the TSX, what would your investment have been worth 9 days later on October 10, 2008? How much money would you have gained or lost?



- a. Determine the percent change between January 1, 2000 and September 1, 2000.

$$\begin{aligned} \% \text{ change} &= \frac{11388.82 - 8413.42}{11388.82} \times 100 \\ &= 26\% \end{aligned}$$

- c. Between 2000 and 2010, the Consumer Price Index (CPI) increased by 22%. The CPI is an index known to approximate inflation. Assume you invested \$5,000 in 2000, and your investment was worth \$8,000 in 2010. Determine the "real value" of your investment and indicate whether your investment is ahead of, or behind, the rate of inflation? Show your work and explain your answer.

$$\frac{8000}{1.22} = 6666.67$$

The "real value" is \$6,666.67. Therefore, they are well ahead of inflation (real value is higher than \$5,000)