1. a) perfect positive

b) no linear relationship

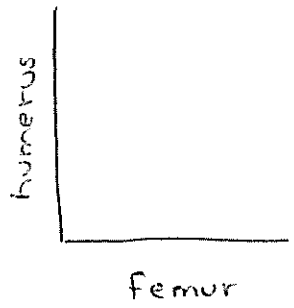
c) weak negative

2. a) as length of foot increases, thumb knuckle length increases too

b) positive

c) strong

3. a)



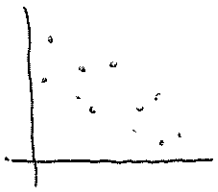
b) positive strong

c) yes, but there could be a possible outlier

4. a)

b)

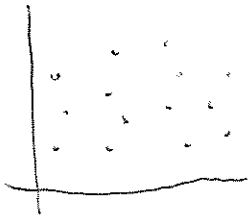
c)



d)

e)

f)



5. a) $r = 0.912$

b) strong positive. As the age increases so does the height.

6. a) $y = mx + c$

$m = \frac{\text{rise}}{\text{run}}$

$= \frac{y_2 - y_1}{x_2 - x_1}$

$= \frac{800 - 300}{12 - 5}$

$= \frac{500}{7}$

$y = \frac{500}{7}x + c$

substitue pt. $(5, 300)$

$300 = \frac{500}{7}(5) + c$

$2100 = 2500 + 7c$

$-400 = 7c$

$c = -57.14$

$y = \frac{500}{7}x - 57.14$

b) $m = \frac{500}{7}$.

It is the relationship between age and circumference of trees. As 1 year passes the circumference gets bigger by $\frac{500}{7}$ cm.

c) i) 657.15cm

ii) 1371.43cm

d) $y = \frac{500}{7}x - 57.14$

$650 = \frac{500}{7}x - 57.14$

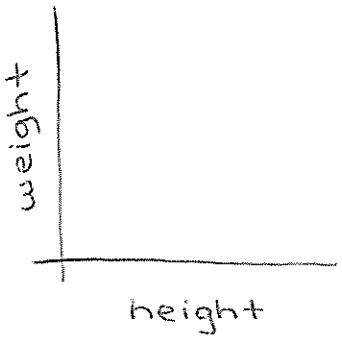
$707.14 = \frac{500}{7}x$

$4949.98 = 500x$

$x = 9.8996$

$x \doteq 9.9$ years

7. a)



b) $y = mx + c$

$m = \frac{\text{rise}}{\text{run}}$

$= \frac{y_2 - y_1}{x_2 - x_1}$

$= \frac{72 - 60}{180 - 165}$

$= \frac{12}{15}$

$= 0.8$

$y = 0.8x + c$

$72 = 0.8(180) + c$

$72 = 144 + c$

$c = -72$

$y = 0.8x - 72$

c) i) $y = 0.8x - 72$

$y = 0.8(172) - 72$

$y = 65.6\,kg$

ii) $y = 0.8x - 72$

$= 0.8(190) - 72$

$= 80\,kg$

d) i) $y = 0.8x - 72$

$80 = 0.8x - 72$

$152 = 0.8x$

$x = \frac{152}{0.8}$

$x = 190\,cm$

ii) $y = 0.8x - 72$

$100 = 0.8x - 72$

$172 = 0.8x$

$x = \frac{172}{0.8}$

$x = 215\,cm$

e) The data range is so small that we can't tell if it is linear or not.(for a whole spectrum). Also, there would be a lot of outliers as obese people are not always tall.

1, a) strong, negative

b) strong negative with outliers

c) moderate positive

d) weak negative

e) no relationship

f) non-linear (parabolic)

g) perfect positive

h) perfect positive

i) exponential (non-linear)

2, a) anywhere near these: -0.75

c) 0.65

d) -0.3

e) 0

g) 1

h) 1

3. $r = -0.72$

4. $a = 20.97$

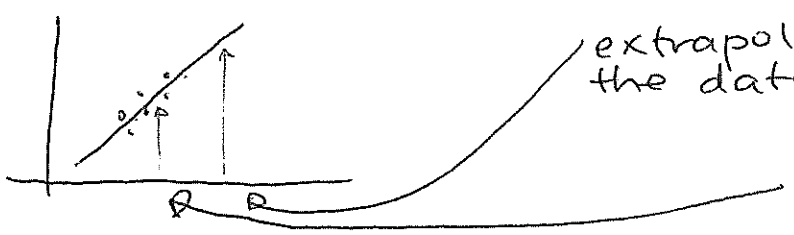
$b = -0.059$

$y = bx + a$

$y = -0.059x + 20.97$

5. Correlation is the relationship between 2 variables. However, causation is always correlation between 2 variables, correlation does not always lead to causation. Causation is when 1 thing causes the other.

6.



extrapolation is outside the data set. Unreliable

interpolation is within the data values and usually reliable.