

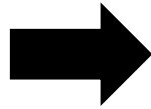
Scatter Diagrams



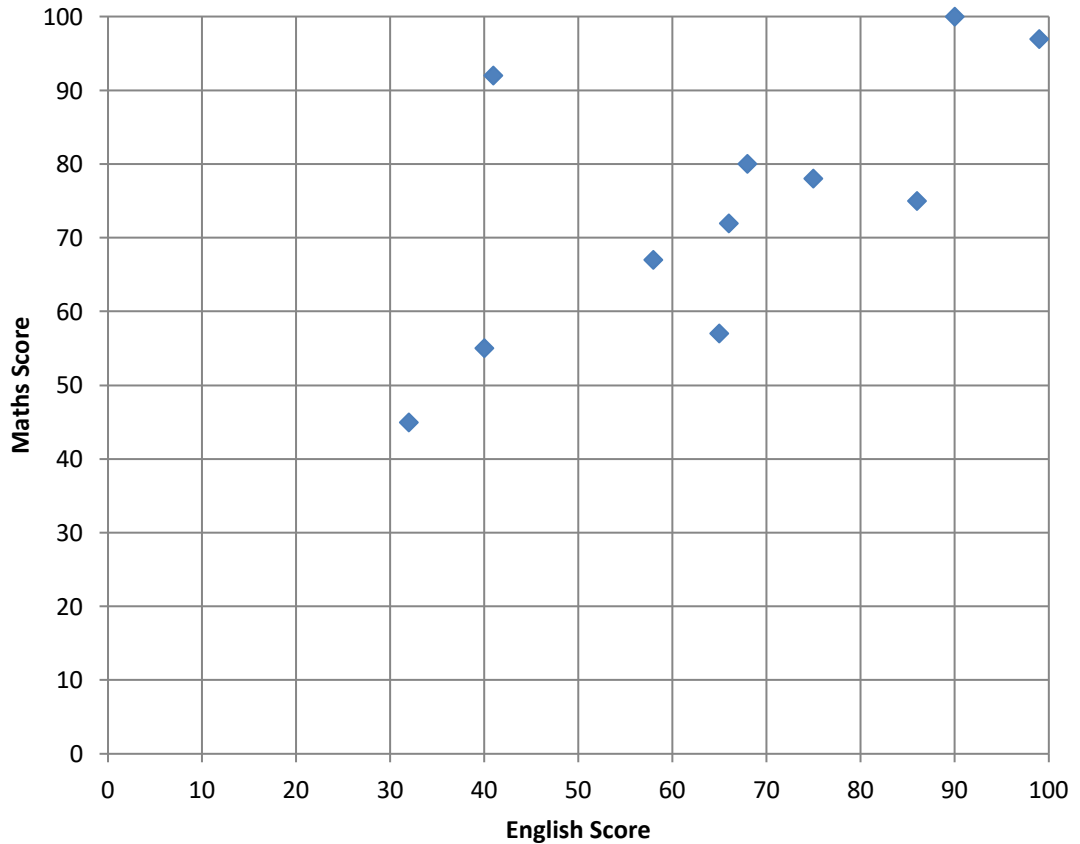
What are Scatter Diagrams?

They display data involving two variables. For example, we might collect compare students' test performance in English and Maths.

English	Maths
40	55
65	57
41	92
68	80
99	97
75	78
58	67
86	75
66	72
90	100
32	45



Maths vs English Test Scores



How can they help us interpret data?

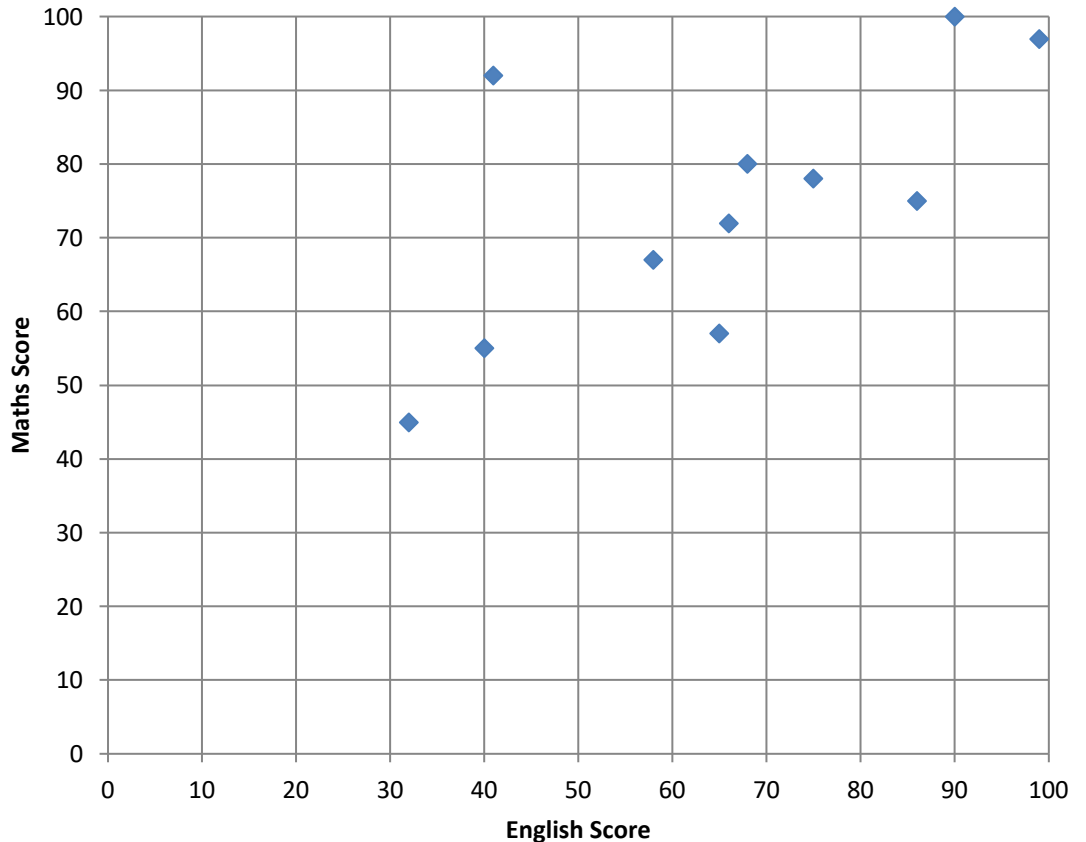
They can help us identify if there is any relationship between the two variables.

The relationship between two variables is known as

How are English and Maths test scores related?

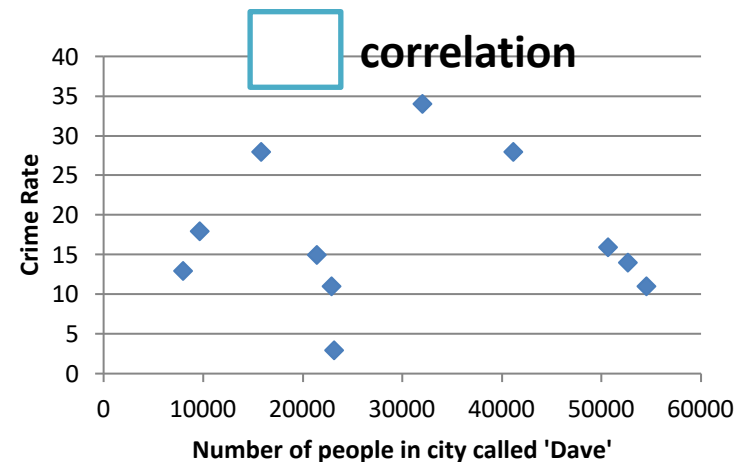
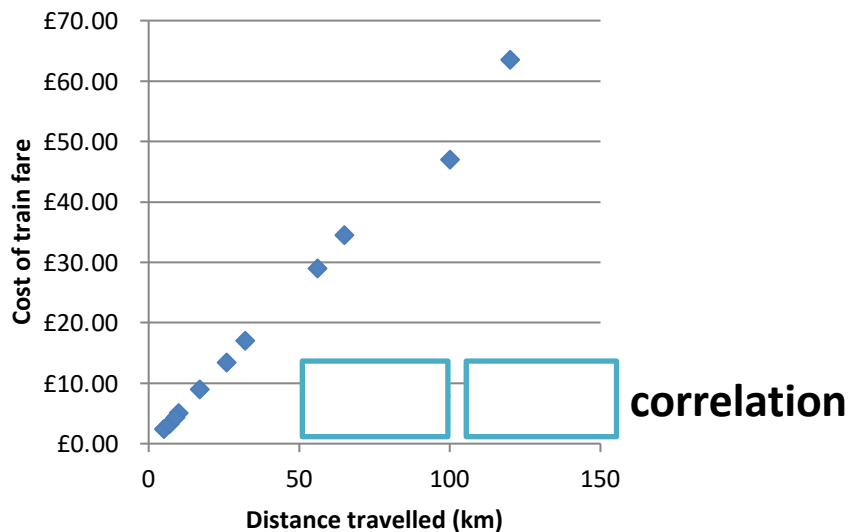
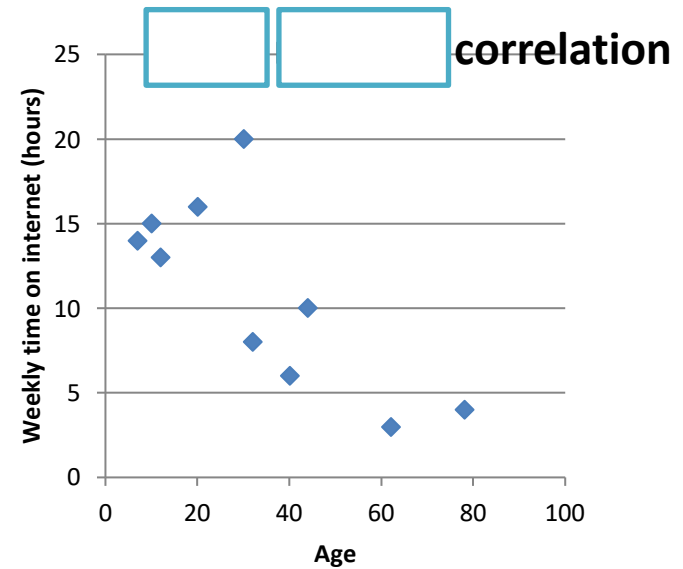
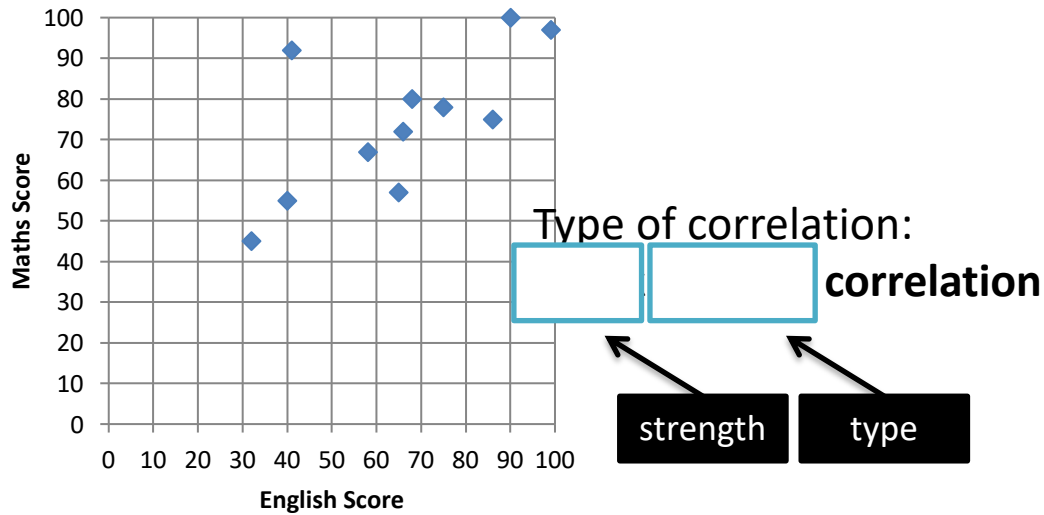
We call this relationship:

Maths vs English Test Scores



Different Types of Correlation

There's 3 types you should be able to identify.

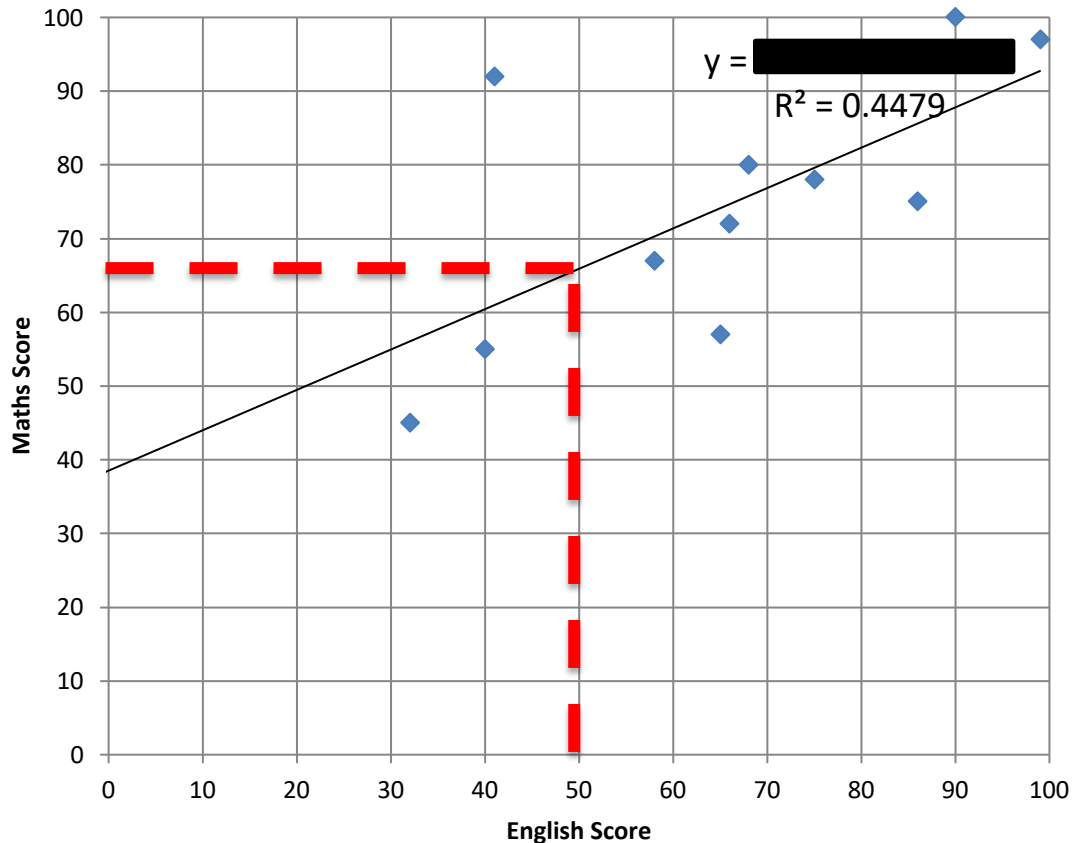


Line of best fit

We can add a line of best fit to the scatter diagram. This allows us to estimate one variable's value given the other.

If a boy gets 50% in his English test, what score might we expect him to get in his Maths test?

Maths vs English Test Scores



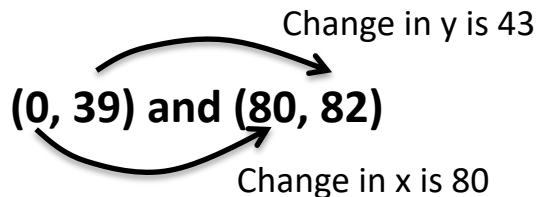
We can add a line of best fit to the scatter diagram. This allows us to estimate one variable's value given the other.

Here's a more interesting question...

Can you come up with an equation that could estimate a Maths Score (y) from an English score (x)?

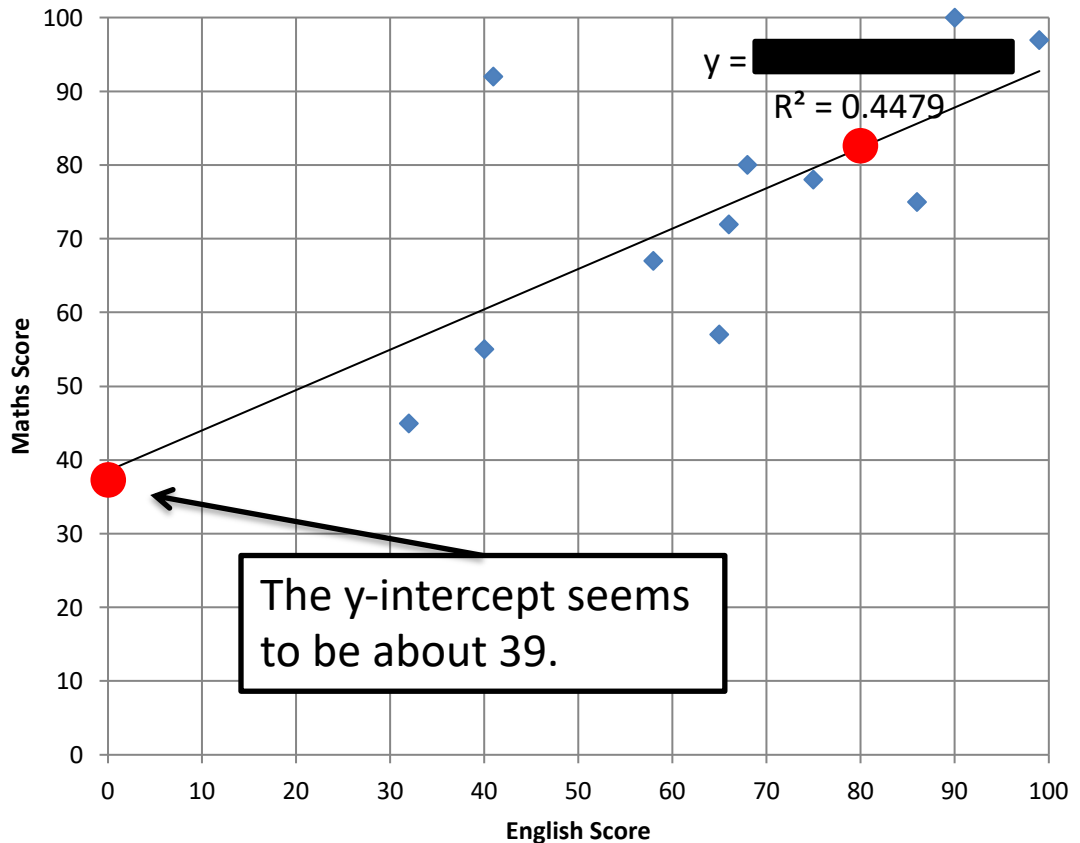
$y =$

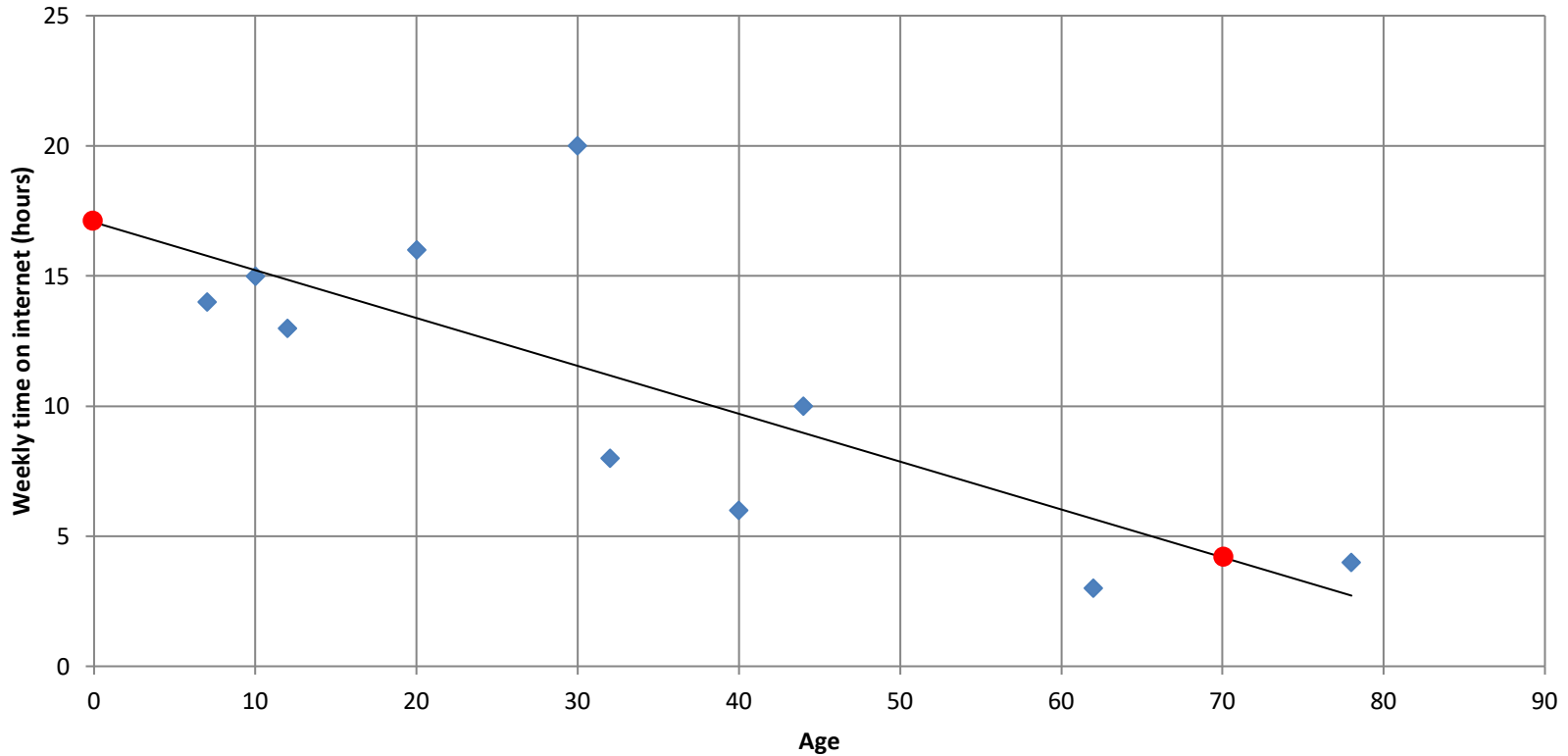
We can find the gradient by picking two random points on the line suitably far apart.



$$m = \frac{\Delta y}{\Delta x} = \frac{43}{80} = 0.54$$

Maths vs English Test Scores

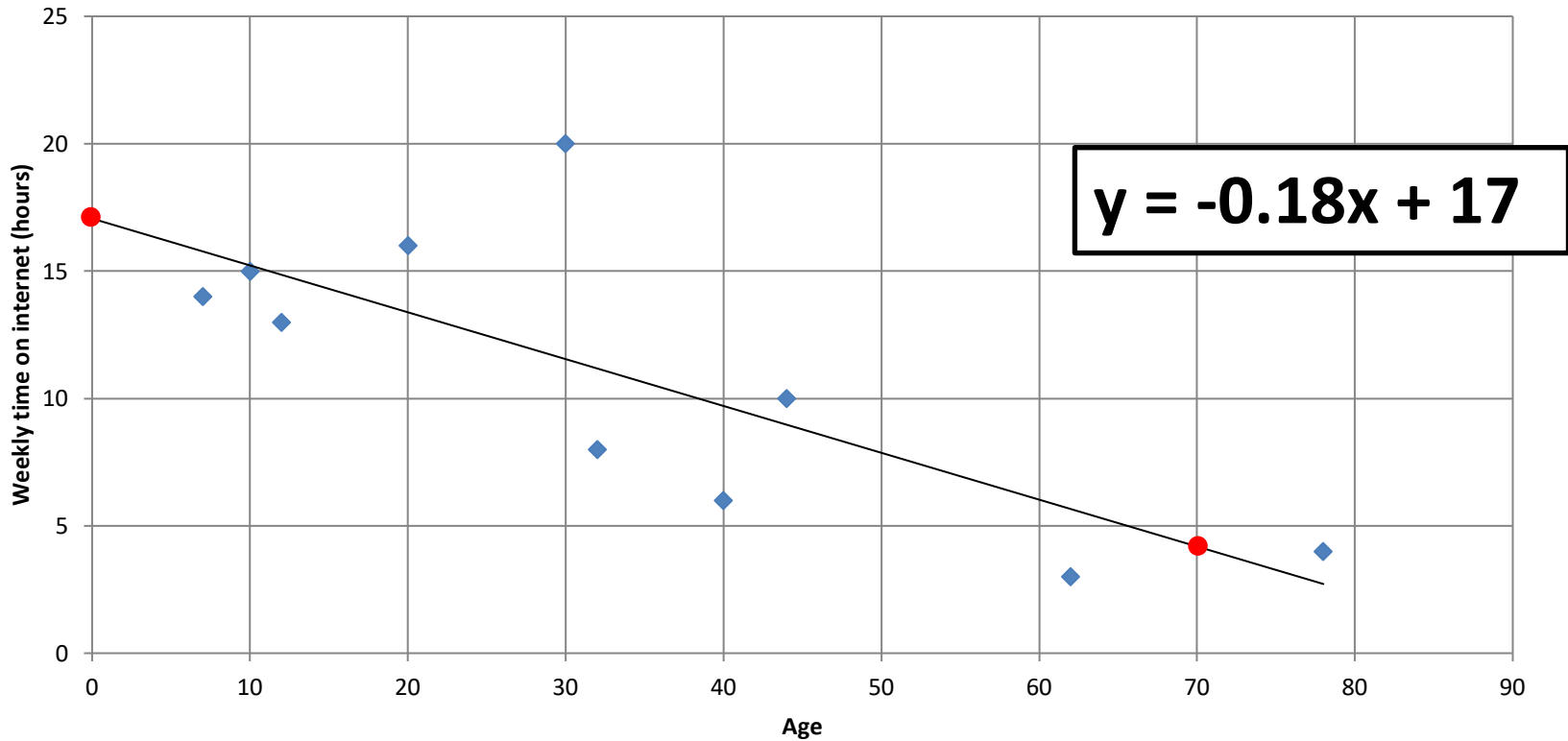




y-intercept:

Gradient:

Equation of line:



If someone's **age is 50**, how many hours would we therefore expect them to be on the internet?