

## S4 Credit – Homework 6

### Non-calculator section:

1. Evaluate  $14.1 - 3.21 \times 4$

2. Evaluate  $1\frac{1}{2} - \frac{4}{5} \div 2\frac{2}{3}$

3. Solve the inequality  $1 - \frac{1}{2}x > 3(x - 2)$

4.  $f(x) = 2x^2 - 5x$

(a) Find  $f(-1)$                       (b) Given  $f(t) = 7$ , find  $t$ .

5. Simplify  $\sqrt{3}(\sqrt{6} - \sqrt{3})$

6. (a) Factorise  $2m^2 - 8n^2$

(b) Hence simplify  $\frac{2m^2 - 8n^2}{m^2 - 4mn + 4n^2}$

7. Solve the pair of equations  $2x - 3y = 16$   
 $3x - 2y = 19$

8. The marks of a group of pupils in 2 different maths tests are shown on the scattergraph opposite.

David scored 20 in the first test and 32 in the second test.

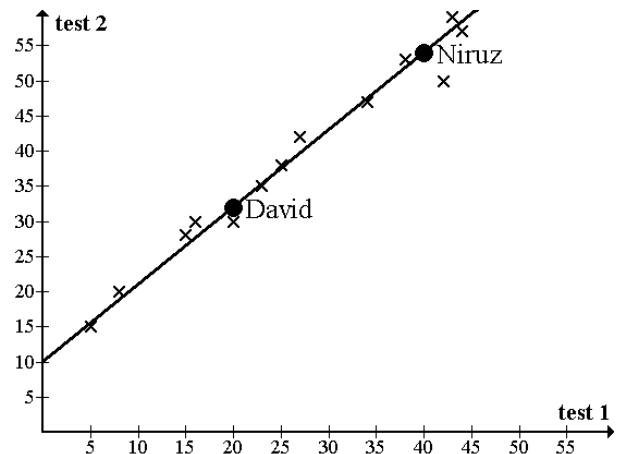
Niruz scored 40 in the first test and 54 in the second test.

A line of best fit has been drawn on the graph.

(a) Describe the relation between test 1 and test 2.

(b) Find the equation of this line.

(c) Amanda scored 30 in test 1. Use your equation to estimate her score in test 2.



9.  $P = \frac{3}{4}(x^2 - y)$ . Change the subject of the formula to  $x$ .

10. Simplify (a)  $\frac{x^{\frac{1}{2}} \times x^{\frac{5}{2}}}{6x}$                       (b)  $9^{-\frac{3}{2}}$

**Calculator section:**

11. Solve the equation  $2x^2 - x - 5 = 0$ , giving your answers correct to one decimal place.

12. The weights, in grams, of 7 kittens are given below

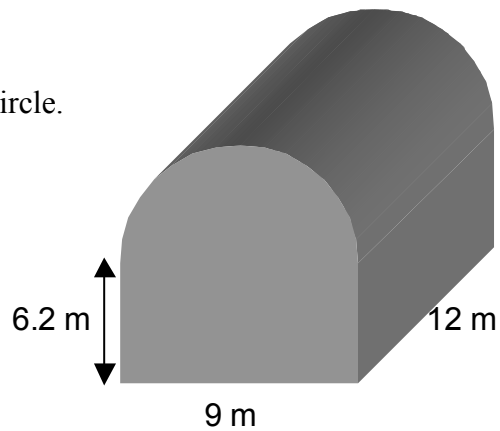
120 135 112 156 110 100 90

- (a) Calculate the mean and standard deviation of the weights.
- (b) 4 weeks later the kittens are weighed again. Each kitten has increased in weight by 20 grams. Write down the mean and standard deviation of the weights now.

13. An ant weighs  $2.11 \times 10^{-6}$  kilograms. A beetle is 25 times as heavy as the ant. Calculate the weight of the beetle. Give your answer in Scientific Notation.

14. The prism opposite has a cross-section in the shape of a rectangle and a semi-circle.

Calculate its volume.



15. Calculate angle ABC in the triangle shown.

