

Credit Mathematics - Homework L

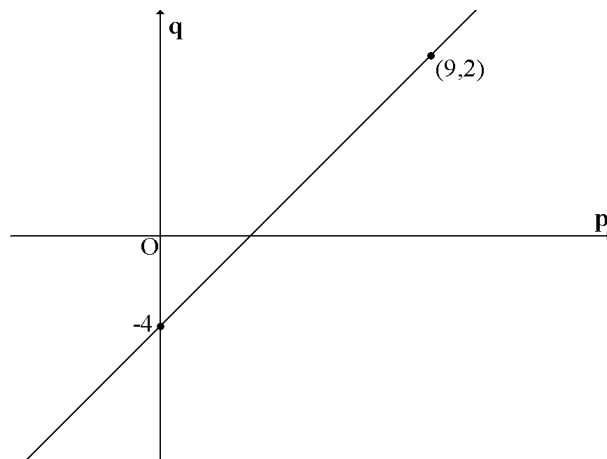
Non-calculator section:

1. Evaluate $40(3.1 - 0.77)$

2. Evaluate $\frac{1}{3} + \frac{5}{8} \div 2\frac{1}{2}$

3. $f(x) = \frac{1}{2}x^2 - 4x$. Find $f(-4)$.

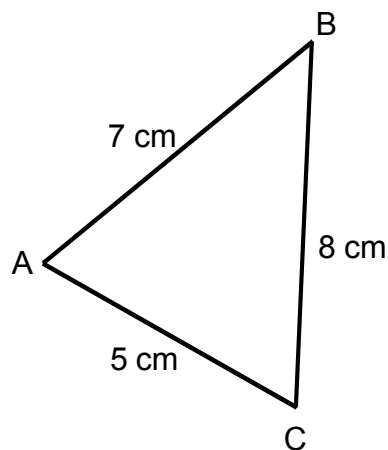
4. Find the equation of the line opposite in terms of p and q .



5. Simplify $\frac{4x^2 - 12x}{5x^2 - 13x - 6}$

6. In the triangle shown
 $AB = 7$ cm, $AC = 5$ cm and $BC = 8$ cm.

Show that $\cos BAC = \frac{1}{7}$



7. (a) Simplify $3\sqrt{27} + 2\sqrt{75}$

(b) Expand the brackets and simplify $3x^4(2x^{\frac{1}{2}} - 5x^{-4})$

8. Express as a single fraction $\frac{1}{2x} + \frac{2}{3x}$ $x \neq 0$

Calculator section:

9. Solve the equation $2x^2 = x + 9$
giving your answers correct to 3 significant figures.

10. P varies as the square of Q and inversely as R .

(a) Write down a formula connecting P , Q and R .

(b) Q is doubled and R is halved, what effect does this have on P .

11. The painting opposite by the artist Carlo Chivello is valued at £650 000. If the value of this painting increases at a rate of 7.2% per annum, how much will the painting be worth in 10 years time?
Give your answer to the nearest hundred thousand pounds.



12. Scientists are studying the differences between crocodiles and alligators.

- (a) The lengths of 6 crocodiles are recorded in feet.
 The results are shown below.

18 23.2 17 22.3 20.7 18.2

Calculate the mean and standard deviation of these lengths.

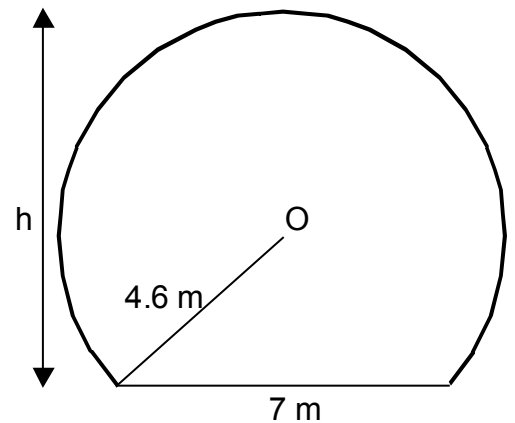
- (b) The lengths of 6 alligators are recorded. The results give a mean of 16.8 feet and a standard deviation of 1.85 feet.

Make two valid comparisons between the lengths of the crocodiles and the alligators.



13. The diagram shows the cross-section of a storage barn. The cross-section is in the shape of part of a circle, centre O, with a straight edge.

Given the information in the diagram, find h , the height of the barn.



14. The diagram opposite shows a pair of similar triangles ABC and ADE.

Calculate the length of BD.

