

# YEAR 9 BASIC ASSESSMENT

1. In a sample space  $S$  with random events  $A$  and  $B$   
 $P(A) = 0.76$      $P(B) = 0.26$      $P(A \cap B) = 0.12$   
 What is the probability that either  $A$  or  $B$  will happen?

2. Simplify:

a)  $6q^5y^2 \times 4qy^4 =$      b)  $(4m^4y^3)(5m^2y^3) =$      c)  $-(-3df^8)^3 =$

d)  $\frac{-15f^{11}q^{12}}{3f^5q^6} =$      e)  $\sqrt{\frac{3^2m^{12}}{4f^8}} =$      f)  $\frac{8^6f^6}{m^4p^{-3}} =$

3. Simplify

a)  $\frac{2m}{y} - \frac{4y}{m} =$      b)  $\frac{x^{-5}}{9x} + \frac{x+2}{3x^2} - \frac{x^{-4}}{5x} =$

c)  $\frac{6r}{r+9} + \frac{3r+2}{(r+9)^2} =$      d)  $\frac{t}{(t+6)(t-6)} + \frac{8t-3}{t(t-6)} =$

4. Factorise

a)  $a^2 - a(e+y) + ey =$      b)  $24a^2 + 30ae - 16ae^3 - 20e^4 =$

c)  $16a^6 - e^8 =$      d)  $2r^2 - 13r + 6 =$

5. Multiply out

a)  $(4+e)(4-e) =$

6. Factorise

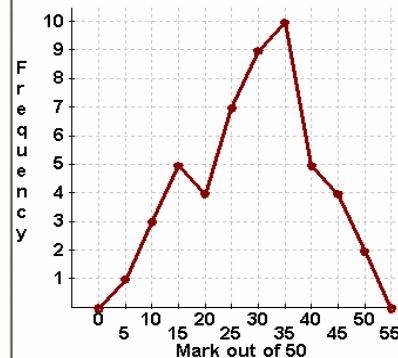
a)  $4e^2 - 6e - 4 =$      b)  $e^2n^3 + 3en^3 + 2n^3 =$      c)  $125g^{12} + 8y^9 =$

7. Simplify

a)  $\frac{y^2 + 3y - 10}{y^2 - 4} =$      b)  $\frac{3g^2 + 8g + 5}{9g^2 - 25} =$      c)  $\frac{8b^2 - 6b - 5}{16b^2 - 25} =$

8. The graph shows the frequency of marks (out of 50) achieved by students in a recent chemistry test

- a) What is the modal mark?
- b) How many students took the test?
- c) Give the relative frequency of the mode.
- d) How many students got 40 out of 50?



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9. Coordinate Geometry

a) Find the midpoint of the line joining the points  $D(-7, 10)$  and  $E(9, 8)$ .

b) Find the gradient of the line joining the points  $M(3, 8)$  and  $N(6, 7)$ .

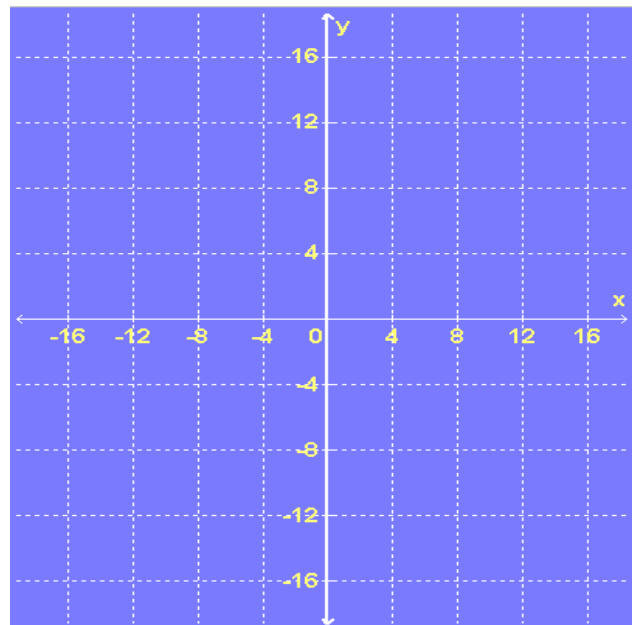
c) Find the angle that the line through  $L(-2, 1)$  and  $M(5, 0)$  makes with the  $x$ -axis.

10. Plot the following graphs and determine the gradient and  $y$  intercept for each:

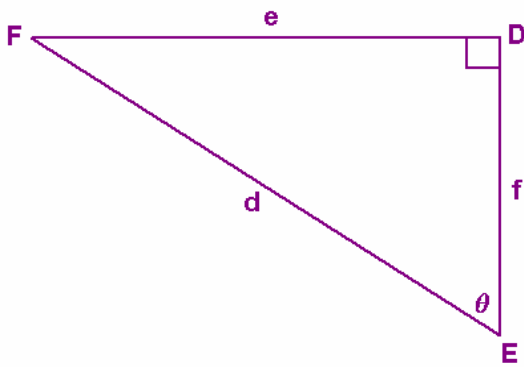
a)  $y = 2x + 3$

b)  $y = -x + 5$

c)  $y = 5x - 4$



11. In the right angle triangle DEF, trigonometric ratios are defined as:



- a)  $\sin \theta =$    $=$
- b)  $\cos \theta =$    $=$
- c)  $\operatorname{cosec} \theta =$    $=$
- d)  $\tan \theta =$    $=$
- e)  $\cot \theta =$    $=$
- f)  $\sec \theta =$    $=$