

Y12 : PRACTICE ASSESSMENT B. MERIT LEVEL ONLY.

Algebra.

1. If $B = K(0.8)^t$ find :

(a) the value of K given that when $t = 0$, $B = 240$

(b) the value of B when $t = 4$

(c) the value of t when $B = 100$

2. Solve $x^2 + (2x - 4)^2 = 13$.

3. Solve the equation :

$$\frac{20 + 3x}{x + 2} = \frac{30 + 4x}{x + 5}$$

4. Solve $3^{2x-1} = 50$

5. Solve $5 - x = \frac{6}{x}$

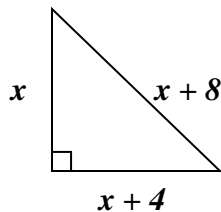
6. Solve:

$$(x^2 - 81)(x^2 - 1) = 0$$

7. Solve

$$300(0.75)^t = 60$$

8. Find the sides of this triangle.



Calculus.

1. If $y' = x^2 - 8x + 15$ find y if $x = 3$, $y = 2$

2. The velocity of a model car is :

$$v = 30t - 3t^2$$

(a) The distance x of the car from O initially is $x = 4$ metres.

Find a formula for the distance at any time t sec

(b) Find x at $t = 4$ sec

(c) Find t when the velocity is zero.

(d) What is the maximum distance of the car from O ?

3. If $y' = x(x - 2)(x - 6)$

find y if $x = 0$, $y = 0$

4. Find the coordinates of the max/min points on the curve :

$$y = x(x + 3)(x - 5)$$

5. Find the equation of the tangent to the curve $y = x^2 - 3x + 2$ at the point $(3, 2)$