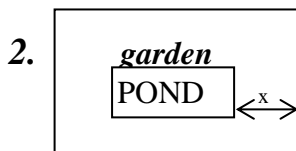


Y12 : PRACTICE ASSESSMENT A. MERIT LEVEL ONLY.

Algebra.

1. Solve: $(2x - 5)^2 + x^2 = 25$



The pond is 3m by 4m

The width of the garden is the same right round the pool.

The total area of the garden is 32 m^2

Find the width x of the garden to 3 sig fig.

3. If I deposit \$3000 for n years at 6% compound interest, find how many whole years it will take to more than double my money by solving:

$$3000(1.06)^n = 6000$$

4. Solve $\frac{4x-8}{x+1} = x-2$

5. A man throws a cricket ball and the equation of its path is

$$y = 2.3 + 5x - x^2/5$$

where y is the height and x is the horizontal distance travelled in metres. Find how far from the man the ball lands.

Calculus.

1. Find the turning points of the curve:

$$y = 2x^3 - 9x^2 + 12x$$

and determine their nature.

2. The height H metre of a metal ball shot into the air at t sec is given by:

$$H = 80t - 5t^2$$

(a) Find t when the ball is at its highest.

(b) Find the greatest height the ball reaches

(c) Find at what times the ball is at a height of 240m

(d) Find to 2 sig figs the times when the ball is at a height of 260 metres.

3. If $y' = -3x^2 + 18x$

find y if $y = 4$ when $x = 2$

4. The velocity of a boomerang v at t sec is

$$v = 30 - 6t$$

(a) Find the initial velocity with which the boomerang was thrown.

(b) At what time was it at its maximum distance away?

(c) If x is the distance from the thrower find the maximum distance it goes.