

1. Hence,

Neighbour's pool dimension = 12 meters

$$\therefore \text{area} = (12)^2 \text{ sq m}$$
$$= 144 \text{ m}^2$$

Celebrity couple's pool length = 24 meters.

$$\text{width} = x \text{ m}$$

AJQ,

$$24 \times x = 144$$

$$\text{or, } x = 6 \text{ meters.}$$

Q. Here,

Quantity of distilled water = 5 litres,

Concentration of acid in " " = 0%

" " in solution 1 = 90%

" " " final solution = 50%

Suppose,

Quantity of final solution = x litre

A.I.Q.,

$$(x-5) \times 90\% + 0\% \times 5 = x \times 50\%$$

$$\text{or}, (x-5) \times 0.9 = 0.5x$$

$$\text{or}, 0.9x - 4.5 = 0.5x$$

$$\text{or}, 0.4x = 4.5$$

$$\text{or}, x = 11.25 \text{ litre}$$

(Ans).

3a) Here,

Total time, $T = 3$ hours.

Speed of airplane, $v_a = 150$ miles/h

" " wind, $v_w = 30$ " / "

Distance, $d = ?$

AIQ,

$$t_1 + t_2 = T$$

$$\text{or}, \frac{d}{150 - 30} + \frac{d}{150 + 30} = 3$$

$$\text{or}, \frac{d}{120} + \frac{d}{180} = 3$$

$$\text{or}, \frac{d}{2} + \frac{d}{3} = 180$$

$$\text{or}, \frac{3d + 2d}{6} = 180$$

$$\text{or}, \frac{5d}{6} = 180$$

$$\text{or}, d = 216 \text{ miles.}$$

b) AIQ, $\ell_1 + \ell_2 = T$

or, $\frac{d}{150} + \frac{\ell}{150} = 3$

or, $\frac{2d}{150} = 3$

or, $d = 225$ miles

∴ Hence,

Ratio of frequency of chord = 10 : 12 : 15

First frequency, A = 220 Hz

Suppose,

Common factor = x Hz

A IQ,

$$10x = 220$$

$$\text{or, } x = 22 \text{ Hz}$$

$$\therefore \text{Frequency of B} = 22 \times 12 \text{ Hz}$$
$$= 264 \text{ Hz}$$

$$\therefore \text{Frequency of C} = 15 \times 22 \text{ Hz}$$
$$= 330 \text{ Hz}.$$

5. Hence,

The number of years in 1960, $x = 0$

So we have,

$$y = -0.0665x^2 + 3.58x + 122$$

$$\text{or, } y = -0.0665 \times (0)^2 + 3.58 \times 0 + 122$$

$$\text{or, } y = 122$$

Again,

Consumption level, $y = 122$

So,

$$122 = -0.0665x^2 + 3.58x + 122$$

$$\text{or, } 0.0665x^2 - 3.58x = 0$$

$$\text{or, } x = \frac{-(-3.58) \pm \sqrt{(-3.58)^2 - 4 \times 0.0665 \times 0}}{2 \times 0.0665}$$

$$= 53.8 \approx 54 \text{ years.}$$

∴ Hence,

Area of garden = 1200 square foot.
Perimeter " " = 150 feet

Suppose,

Length of the garden = x feet.
Width " " " " = $(\frac{150}{2} - x)$ " ,
~~Astro~~,
AIQ,
 $x \times (75 - x) = 1200$

$$\text{or, } 75x - x^2 = 1200$$

$$\text{or, } x^2 - 75x + 1200 = 0$$

$$\text{or, } x = \frac{-(-75) \pm \sqrt{(-75)^2 - 4 \times 1 \times 1200}}{2 \times 1}$$

$$= \frac{75 \pm 28.72}{2}$$

$$= 51.86 \text{ or } 23.14$$

$$\therefore \text{Width} = 23.14 \text{ or } 51.86$$

But length is bigger than ~~breadth~~
width so length is 51.86 feet and width 23.14

7. Hence,

$$\text{price, } P = \$3$$

We have,

$$\begin{aligned}\text{Demand, } Q &= 1600 - 200P \\ &= 1600 - 200 \times 3 \\ &= 1000\end{aligned}$$

$$\text{Revenue, } R = P \times Q$$

$$\begin{aligned}&= 3 \times 1000 \\ &= \$3000\end{aligned}$$

(Ans)

8. Hence,

Distance, $d = 500$ miles

Speed of first plane, $v_1 = 200$ miles/
hour

" " second " , $v_2 = 170$ miles/hour

Time, $t = ?$

$$\therefore d_1^2 + d_2^2 = d^2$$

$$\text{or, } (v_1 t)^2 + (v_2 t)^2 = (500)^2$$

$$\text{or, } (200t)^2 + (170t)^2 = (500)^2$$

$$\text{or, } 40000t^2 + 28900t^2 = 250000$$

$$\text{or, } t^2 = 3.63$$

$$\text{or, } t = 1.9 \text{ hours}$$

(Ans)

(Ans)

Q9. Suppose,

The number = x

AIQ,

$$x+x = xx$$

$$\text{or, } 2x = x^2$$

$$\text{or, } x^2 - 2x = 0$$

$$\text{or, } x(x-2) = 0$$

Hence,

$$x=0$$

$$\text{or, } x-2=0$$

$$\text{or, } x=2$$

(Ans)