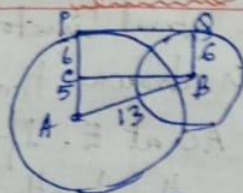


(A) ANSWERS :

1. (b)



$$PQ = 12 \text{ cm}$$

$$\therefore PQ = \sqrt{(13)^2 - (11-6)^2}$$

$$PQ = \sqrt{169 - 25} = \sqrt{144}$$

2. (a) Let, $A = 30^\circ$ and $B = 60^\circ$

$$\tan A = n \tan B$$

$$\Rightarrow n = \frac{\tan A}{\tan B} = \frac{1}{3}$$

$$\sin A = m \sin B$$

$$\Rightarrow m = \frac{\sin A}{\sin B} = \frac{1}{\sqrt{3}}$$

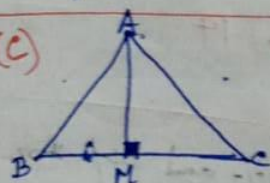
put the value of A in $\cos A$; Neget $\frac{3}{4}$.

then according to the $\frac{m-1}{n-1} = \frac{3}{4}$. option (a)

Satisfied the given Condition.

$\therefore$ Required answer is $\frac{m-1}{n-1}$

3. (c)



Now, In $\triangle ABM$

$$\tan B = \frac{3}{4} \Rightarrow AM = 32$$

$$\text{and } BM = 42$$

$$\text{Now, } MC = (56 - 42) \text{ cm}$$

$$\therefore \tan C = \frac{5}{12}$$

$$\Rightarrow \frac{3x}{(56 - 42)} = \frac{5}{12}$$

$$\Rightarrow 36x = 280 - 20x$$

$$\Rightarrow x = 5$$

$$\Rightarrow 32 = 15 \text{ cm}$$

area of $\triangle ABC$

$$\left(\frac{1}{2} \times 56 \times 15 \right) \text{ cm}^2$$

$$= 420 \text{ cm}^2$$

(A) ANSWERS:-

4. (a) LCM of 6, 8 and 12 is 24.

Let the total work be 24 units.

$(A+B)$	$(B+C)$	$(A+B+C)$	A	C
$(\frac{24}{8})$	$(\frac{24}{12})$	$(\frac{24}{6})$	$(4-2)$	$(4-3)$
3 units	2 units	4 units	2 units	1 unit

Required number of days is $\frac{24}{(2+1)} = 8 \text{ days}$

5. (b) $n(P) = \frac{n(E)}{n(S)} = \frac{7C_2}{20C_2} = \frac{21}{190}$

[Since, P = Both are White balls.]

6. (a) Let the Original CP be ₹ 100x
SP be ₹ 120x

Now, the cost price becomes to 80x

then, the selling price is (120x - 5)

Profit = $(80x \times \frac{1}{4}) = 20x$

According to the question:

$(SP - CP) = P$

$\Rightarrow (120x - 5) - 80x = 20x$

$\Rightarrow 120x - 80x - 20x = 5$

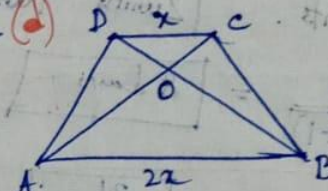
$\Rightarrow \begin{matrix} 20x = 5 \\ \times 5 \\ 100x \end{matrix}$

₹ 25

(A) :- ANSWERS :- <8>

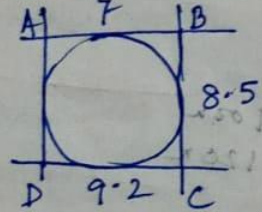
7. (b) Avg. speed = $\frac{4 \times 7}{\frac{7}{10} + \frac{7}{20} + \frac{7}{30} + \frac{7}{60}}$

$$= \frac{28 \times 60}{(42 + 21 + 14 + 7)} = \left(\frac{28 \times 60}{84} \right) = 20 \text{ km/h}$$

8. (a)  $\triangle AOB \sim \triangle DOC$ [similar]

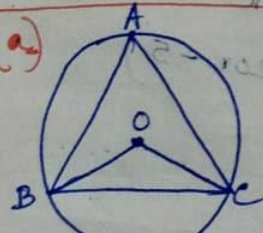
$$\therefore \frac{\triangle AOB}{\triangle COD} = \left(\frac{AB}{CD} \right)^2 = \frac{4}{1}$$

$$\therefore \triangle COD = \frac{1}{4} \triangle AOB = \left(\frac{84}{4} \right) = 21 \text{ cm}^2$$

9. (a)  $\therefore AB + CD = BC + DA$

$$\Rightarrow 16.2 = 8.5 + DA$$

$$\Rightarrow DA = 7.7 \text{ cm}$$

10. (a)  Here, $\angle BOC = 2\angle BAC$

Now, $OB = OC = \text{Radii}$

$$\therefore \angle OBC = \angle OCB$$

In $\triangle ABC \Rightarrow \angle BOC + \angle OBC + \angle OCB = 180^\circ$

$$\Rightarrow \angle BOC + 2\angle OBC = 180^\circ \left[\because \angle OBC = \angle OCB \right]$$

$$\Rightarrow 2\angle BAC + 2\angle OBC = 180^\circ \left[\because \angle BOC = 2\angle BAC \right]$$

$$\Rightarrow (\angle BAC + \angle OBC) = 90^\circ$$

(A) - ANSWERS :-

11. (b)

3^{50}	4^{70}	5^{30}	6^{20}
$(3^5)^{10}$	$(4^7)^{10}$	$(5^3)^{10}$	$(6^2)^{10}$
$(243)^{10}$	$(256)^{10}$	$(125)^{10}$	$(36)^{10}$

greatest number
↓
440

12. (c) Let the Weight be $2x$ & $3x$.

Cost of the mixture = $\{2x \times 35 + (40 \times 3x)\}$
 $= 190x$

SP = $\left\{ \left(\frac{5x}{5} \times 46 \right) + \left\{ \left(5x \times \frac{4}{5} \right) \times 55 \right\} \right\} = 126x$

Now profit (%) $\rightarrow \left[\left(\frac{266x - 190x}{190x} \right) \times 100 \right] \% = \boxed{40\%}$

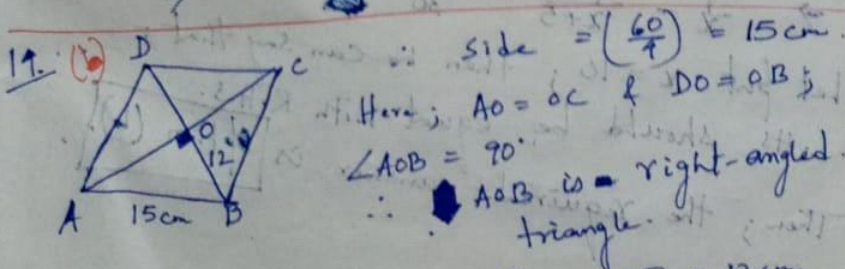
13. (a) Let the speed of Q be x km/hr.
 $\therefore$ the speed of P be $(x+8)$ km/hr.

According to the question:

$$x + (x+8) = \frac{162}{6} \quad \text{or} \quad 2x = 19$$

$\Rightarrow 2x = 19$

$x = \frac{19}{2}$
 $x = \boxed{9\frac{1}{2} \text{ km/hr}}$



Now; Let $DB = 24 \text{ cm}$; then $OB = 12 \text{ cm}$

In $\triangle AOB$; $AO = \sqrt{(15)^2 - (12)^2} = 9$

$\therefore AC = 18 \text{ cm}$

Area = $\left(\frac{1}{2} \times AC \times DB \right) = \left(\frac{1}{2} \times 18 \times 24 \right) \text{ cm}^2 = \boxed{2160}$

(A) :- ANSWERS :-

<10>

15. (b) $7 \sin \theta + 3 \cos \theta = 4$

$\Rightarrow 4 \sin \theta + 3 \sin \theta + 3 \cos \theta = 4$

$\Rightarrow 4 \sin \theta + 3 (\sin \theta + \cos \theta) = 4$

$\Rightarrow 4 \sin \theta + 3 = 4$

$\Rightarrow 4 \sin \theta = 1$

$\sin \theta = \frac{1}{4} \Rightarrow \theta = 30^\circ$

$\tan 30^\circ = \frac{1}{\sqrt{3}}$

16. (b) Let; Total number of people in an office is $100x$

$\therefore \text{Male} = 60x \quad \text{Female} = 40x$

Now, Un-married people = $\left\{ \frac{60x}{2} + \left(\frac{40x \times 30}{100} \right) \right\}$

$= 42x$

$\therefore \text{Required percentage is } = \boxed{42\%}$

17. (b) Let the no. of book be x .

$\therefore$ According to the question:

$\frac{300}{x} - \frac{300}{(x+5)} = 10$

$\Rightarrow \frac{1}{x} - \frac{1}{x+5} = \frac{1}{30}$

Let put $x = 10$; then we can say that;

L.H.S. should be equal With R.H.S.

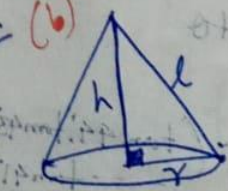
Then; the required answer is Option (b).

[A] - ANSWERS :- <11> (A)

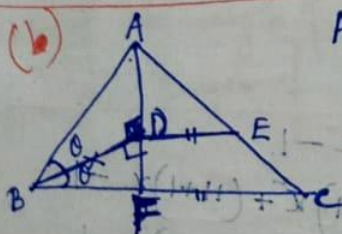
18. (b) $24 \sin \theta + 7 \cos \theta$ $\therefore$ Maximum Value $\therefore$
 let $a = 24$; $b = 7$ $\therefore \sqrt{a^2 + b^2} = \boxed{25}$

19. (a) Interior angle + Exterior angle = 180° $\therefore n(\text{side})$
 $\Rightarrow 4x + x = 180^\circ$ $= \frac{360^\circ}{x}$
 $\Rightarrow x = 36^\circ$ $\Rightarrow \boxed{10}$

20. (b) $\frac{1}{3} \pi r^2 h = \pi r k$ $\therefore \frac{1}{r^2} + \frac{1}{h} = \boxed{9}$
 $\Rightarrow \frac{1}{3} h = \sqrt{h^2 + r^2}$
 $\Rightarrow r^2 h^2 = h^2 + r^2$



21. (b) AD is extended to BC at F.
 Now, $\angle ADB = \angle BDF \rightarrow (i)$
 $\angle BAD = \angle BFD \rightarrow (ii)$
 $\therefore \triangle ABD \cong \triangle BDF$ [Congruent]
 $\therefore AD = DF$
 $\therefore \triangle ADE \sim \triangle AFC$ [By A-A similarity]



Then, $\triangle ADE \sim \triangle AFC$ [Similar]
 $\therefore \frac{AE}{AC} = \frac{AD}{AF} = \frac{1}{2} \Rightarrow AE = \frac{AC}{2} = \frac{12}{2} = \boxed{6\text{cm}}$

(A) - ANSWERS :- (12)

22: (A) $3(a+b+c) = (a+b+c)^2 + 2(ab+bc+ca)$

$\Rightarrow 3a^2 + 3b^2 + 3c^2 = a^2 + b^2 + c^2 + 2(ab+bc+ca)$

$\Rightarrow 2a^2 + 2b^2 + 2c^2 - 2ab - 2bc - 2ca = 0$

$\Rightarrow (a-b)^2 + (b-c)^2 + (c-a)^2 = 0$

$\therefore \boxed{a = b = c}$

23: (A) $\cot 41^\circ, \cot 42^\circ, \cot 43^\circ, \dots, \cot 49^\circ$

We know that; $\tan(90^\circ - \theta) = \cot \theta$

again; $\tan \theta \cdot \cot \theta = 1$

$\therefore (\cot 41^\circ \cdot \cot 42^\circ \cdot \cot 43^\circ \cdot \cot 44^\circ) \cdot \cot 45^\circ (\tan 44^\circ \cdot \tan 43^\circ \cdot \tan 42^\circ \cdot \tan 41^\circ)$

$= \boxed{1}$

24: (A) $x^5 - 12x^4 + 12x^3 - 12x^2 + 12x - 1$

$= x^5 - (11+1)x^4 + (11+1)x^3 - (11+1)x^2 + (11+1)x - 1$

$= x^5 - (x+1)x^4 + (x+1)x^3 - (x+1)x^2 + (x+1)x - 1$

$= x^5 - x^5 - x^4 + x^4 + x^3 - x^3 - x^2 + x^2 + x - 1$

$= (x-1) = (11-1) = \boxed{10} \left[\because x=11 \right]$

25: (A) $z = -x - y + \frac{xy}{100}$

$z = (-10 - 30 + \frac{300}{100}) = -37\%$

$\therefore \text{Discount} = \boxed{37\%}$

X