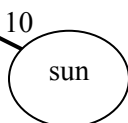


1. (a) $((x+1)(x-2)) : ((x+2)(x+1)) :: 3 : 5$
2. (d) _____



Increase in day time for 20° $(10 + 10) = (12/180) \times 20$ hours

3. (b)
4. (c) $4 \times \frac{1}{2} \times (10)^2 \times \frac{\sqrt{3}}{2} = 100\sqrt{3} = 173.2 \text{ cm}^2$
5. (d) $3! \times 2! \times 5! = 1440$
6. (a) Initial amount of sugar in vessel of volume 100mg = $(3/10) \times 100 \times 2 = 60 \text{ mg}$
Final amount = $(1/6) \times 100 \times 2 = 100/3 \text{ mg}$
 $T = (60 - 100/3) = 80/3 = 26 \frac{2}{3}$ seconds
7. (d) $b = a^{\sqrt{n}}$ 8. (a)
9. (c) surface area = $3a^2 + 3a^2/2 + \sqrt{3}/4 \left((\sqrt{2}a)^2 \right)$
(3 squares, with side a) + (3 right angled triangles with base & perpendicular = a) + (one equilateral triangle with side equal to the diagonal of the square)
10. (c) Medians are same as altitude in equilateral triangle.
11. (a) Total distance covered here is 280 km (230 + 50) and not 180kms (230-50)
12. (a) Let earlier cost = Rs. X per kg.
Present cost = Rs. $0.9X$ per 850 gm =
Rs. $(0.9X \times 1000)/850$ per kg.
= Rs. $(18/17)X$
Profit % = $(1 \times 100)/17$
= 5.88%
13. (c) In 10 min minute hand will cover an angle of 60 degree and hour hand 5 degrees. Hence angle between them is 35° . (Angle will be 30° after 10 10/11 minutes).
14. (b)

15. (c)
16. (d) S has to be 1. Then D (under L) must be greater than 6 (D+3 is a two digit number). $D=7, L=0, A=2$ or $D=8, L=1, A=3$ or $D=9, L=2$ (or 3), $A=3$ (or 4). If 1 was carried over from D to E, then $N=9$, and D (over A) would be 6 more than A. But this cannot be true (from the above inference about D, L, A), hence $E \neq 0, E = N + 1, E \neq 1$.
 $E = 2 \Rightarrow N = 1$, therefore
 $E \neq 2, E = 3 \Rightarrow N = 2$
17. (b) $2\pi r = a$
18. (c)
19. (d) First two wives will cross then one of them return with boat. Both husbands now move to the next shore, husband whose wife is on another bank will return & then move with his wife. In all 5 trips are needed, One trip – crossing once.
20. (d) area of arc = $(\theta/360) \times \text{total area of circle}$.
Where θ is the angle of arc.
Angle covered by minute hand in 20 min = $360/3 = 120$ degree.
21. (a) $AB : AC :: BD : DC$ (Angle bisector divide the opposite side in the ratio of the sides containing the angle).
22. (b) GP series with common ratio $1/\sqrt{3}$
23. (d)
24. (c)
25. (a) $(4/3) \cdot \pi \cdot r^3 = (1/3) \cdot \pi \cdot 9 \cdot 12$