

Summative assessment
Term 1

Std-X

Answer key
Section A

1. 16

2. C

3. A) 4, 10, 16, 22 - - - Yes. Common difference = 6
~~No common difference is not same~~

B) 1, 3, 5, 7, 9, 1, 3, 5, 7, 9 - - -
No

$$4) \frac{108}{9} = 12$$

108 is a multiple of 9. 108 can be the difference
between any two terms of this sequence

$$(i) x_{15} = 14 + 14 \times 9 \\ = 140$$

$$(iii) x_n = 9n + 5 \\ 9n + 5 = 230 \\ 9n = 230 - 5 \\ 9n = 225 \\ n = \frac{225}{9} \\ = 25$$

5 A)

$$1) x_5 = \frac{51 + 45}{2} = 48$$

(ii) 12

(iii) 60, 57, 54, 51 - - -

13.

$$1) x_4 = \frac{133}{7} = 19$$

$$(11) x_{11} = \frac{378}{7} = 54$$

$$(11) d = 5$$

4, 9, 14, 19 - - -

$$6. \quad \begin{array}{ccccccc} & & \text{cd}=3 & & \text{cd}=3 & & \text{cd}=3 \\ & \text{2nd term} & \text{5th term} & \text{8th term} & \text{11th term} & \text{14th term} & \\ \boxed{22} & -20 & \boxed{42} & +20 & \boxed{62} & +20 & \boxed{82} & +20 & \boxed{102} \end{array}$$

$$1) 22$$

$$12) 102$$

$$\begin{aligned} (11) \text{ Sum of first 18th terms} &= \frac{18}{2} [x_1 + x_{18}] \\ &= \frac{18}{2} [x_5 + x_{14}] \\ &= 9 \times [42 + 102] \\ &= 9 \times 144 \\ &= 1296 \end{aligned}$$

Section B

$$7. \quad (x-2)^2 = 81$$

$$x-2 = \sqrt{81}$$

$$x-2 = 9$$

$$x = 11$$

$$8. \quad 7$$

$$9. \quad x_n = 4n + 2$$

Any natural number leaves remainder 2

on division by 4 is not a perfect square

$$10) x(x+4) = 672$$

$$x^2 + 4x = 672$$

$$x^2 + 4x + 4 = 672 + 4$$

$$(x+2)^2 = 676$$

$$x+2 = \sqrt{676}$$

$$x+2 = 26$$

$$x = 24$$

$$11) i) 5$$

$$(ii) 3 \times 2^2 + 2 \times 2$$

$$= 16$$

$$(iii) x_n = 6n - 1$$

$$12. A) x(x+8) = 180$$

$$x^2 + 8x + 16 = 180 + 16$$

$$(x+4)^2 = 196$$

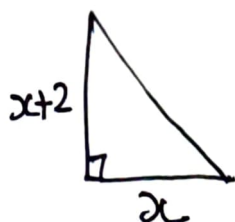
$$x+4 = 14$$

$$x = 10$$

Sides are 10, 18



13)



$$\frac{1}{2} \times x(x+2) = 24$$

$$x(x+2) = 24 \times 2$$

$$x^2 + 2x + 1 = 48 + 1$$

$$(x+1)^2 = 49$$

$$x+1 = 7$$

$$x = 6$$

Perpendicular sides are 6, 8

$$13. (i) \text{ first term} = 105$$

$$\text{last term} = 994$$

$$(ii) 128$$

$$(iii) \frac{128}{2} [105 + 994] \\ = \underline{\underline{70,336}}$$

$$14. (i) \frac{30 \times 31}{2} = 31 \times 15 \\ = 465$$

$$(ii) 4 [1 + 2 + 3 + \dots + 30] = 4 \times 465 \\ = 1860$$

$$(iii) 1860 + 30 \\ = 1890$$

~~$S_n = 4n$~~

$$x_n = 4n + 1$$

$$S_n = 4 \times n \frac{(n+1)}{2} + 1 \times n$$

$$= 2n(n+1) + n$$

$$= \underline{\underline{2n^2 + 3n}}$$

B) 1) ~~25+9~~ $n^2 + 10n$

(11) $n^2 + 10n = 600$

$$n^2 + 10n + 25 = 600 + 25$$

$$(n+5)^2 = 625$$

$$n+5 = \sqrt{625}$$

$$n+5 = 25$$

$$n = 20$$

Section C

15 B

16 $\frac{4}{6}$

17. (1) $\frac{1}{2}$

(11) probability to win if playing } $\frac{7}{15}$
in the second game board

$$\frac{1}{2} > \frac{7}{15}$$

I game board has more chance

18 1) $\frac{1}{6}$

2) 160°

3) $\frac{140}{360} = \frac{7}{18}$

19) A) 1) ~~$\frac{4}{20}$~~ = ~~$\frac{1}{5}$~~

2) $\frac{2}{20} = \frac{1}{10} = 0.1$

3) ~~$\frac{2}{20}$~~ $\frac{5}{20} = \frac{1}{4}$

13

black - 10
white 15

25

black - 15
white 25

40

$$1) 25 \times 40 = 1000$$

$$12) \frac{150}{1000} = \frac{3}{20}$$

$$(11) \frac{850}{1000} = \frac{17}{20}$$

$$(14) \frac{10 \times 25 + 15 \times 15}{1000} = \frac{475}{1000}$$

Section D

20 A C

21 D

$$22 \ 1. \angle ADB = 65^\circ$$

$$2. \angle BDC = 25^\circ$$

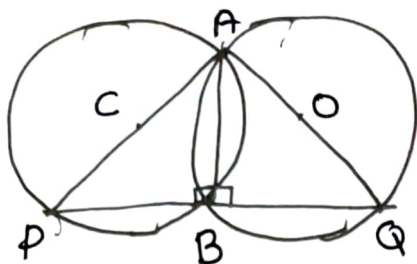
$$3. \angle BPC = 155^\circ$$

$$23 \ A \ \angle POR = 140^\circ$$

$$\angle PSR = 40^\circ$$

$$\angle PCR = 80^\circ$$

B)



Draw line AB & PQ

$$\angle PBA = 90^\circ \quad [\text{angle in a semicircle}]$$

$$\angle QBA = 90^\circ$$

$$\angle PBA + \angle QBA = 180^\circ$$

Sum of adjacent angles $\angle PBA$ and $\angle QBA$ is 180°

They form a linear pair

Then the points P, B, Q are on a line

24 A

$$\angle BCE = 130^\circ [180 - (20 + 30)]$$

$$\angle ADB = 50^\circ$$

$$\angle DAB = 90^\circ$$

$$\angle ABD = 40^\circ$$

$$B. i) \angle BDC = 50^\circ$$

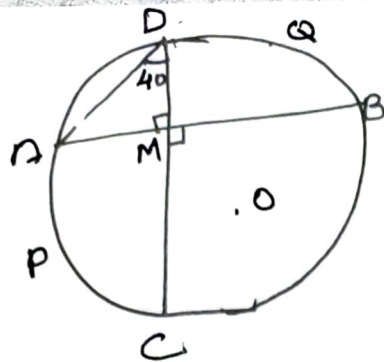
$$ii) \angle ACB = 20^\circ$$

$$iii) \angle ABC = 110^\circ$$

$$iv) \angle DCE = 100^\circ$$

25)

25



$$\angle ADM = 40^\circ$$

central angle of arc APC = $\angle AOC = 80^\circ$

In $\triangle ADM$

$$\begin{aligned}\angle DAM &= 180 - (40 + 90) \\ &= 50^\circ\end{aligned}$$

$$\angle BAD = 50^\circ$$

central angle of arc BQD = $2 \times 50 = 100$

central angle of arc APC + central angle of arc BQD = $80 + 100 = 180^\circ$

Since sum of central angles is 180° . It forms a semi circle.

26. Construction

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