INDIAN SCHOOL MUSCAT
FINAL TERM EXAMINATION- 2022
MATHEMEATICS (STANDARD)
SUBJECT CODE:041

CLASS :X
DATE: 24/11/22

TIME ALLOTED: 3 HRS.
MAXIMUM MARKS:80

GENERAL INSTRUCTIONS:

- **All questions must be attempted, however there are internal options given for 2-, 3- and 5-marks questions.**
- **SECTION A has 20 questions of 1mark each.**
- **SECTION B has 5 questions of 2 marks each.**
- **SECTION C has 6 questions of 3 marks each.**
- **SECTION D has 4 questions of 5 marks each.**
- **SECTION E has 3 case-based questions of 4 marks each.**
- **Use of calculator is not permitted.**
- **Attach the graph paper with the answer sheet irrespective of the fact whether you use it or not.**

SECTION: A (20 x 1=20)

Choose the correct answer for each of the following:

1. The sum of the exponents of the prime factors in the prime factorization of 196 is:

   (a) 3   (b) 4   (c) 5   (d) 2

2. The H.C.F. (a, b) = 2 and L.C.M. (a, b) = 27. What is the value $a \times b$?

   (a) 44   (b) 54   (c) 56   (d) 68

3. If α and β are the zeroes of a polynomial such that $\alpha + \beta$ = -6 and $\alpha\beta$ = - 4, then the polynomial is

   (a) $x^2 - 6x - 4 = 0$ (b) $x^2 + 6x - 4 = 0$

   (c) $x^2 + 6x + 4 = 0$ (d) $x^2 - 6x + 4 = 0$

4. Two dice are thrown together. The probability of getting the same number on both the dice is:

   (a) $\dfrac{1}{2}$ (b) $\dfrac{1}{3}$ (c) $\dfrac{1}{6}$ (d) $\dfrac{1}{12}$

5. A system of simultaneous linear equations is said to be inconsistent if it has

   (a) one solution   (b) two solutions   (c) no solutions   (d) infinite solutions

6. The discriminant of the quadratic equation $3x^2 - 4x - 2 = 0$ is

(a) 40 (b) 20 (c) 24 (d) 48

7. If k, $2k-1$ and $2k+1$ are three consecutive terms of an A.P., then the value of k is:

(a) 2 (b) 3 (c) -3 (d) 5

8. The sum of first 20 odd natural numbers is:

(a) 100 (b) 210 (c) 400 (d) 420

9. If the last term of the A.P. 5, 3, 1, -1,.... is -41, then the A.P. consists of:

(a) 46 terms (b) 25 terms (c) 24 terms (d) 23 terms

10. The mid-point of segment AB is the point P (0,4). If the coordinates of B are (-2, 3), then the coordinates of A are:

(a) (2, 5) (b) (-2, -5) (c) (2, 9) (d) (-2, 11)

11. If the point C (k, 4) divides the joining of points A (2, 6) and B (5, 1) in the ratio 2 : 3, then the value of k is:

(a) 16 (b) $\dfrac{28}{5}$ (c) $\dfrac{16}{5}$ (d) $\dfrac{8}{5}$

12. In $\triangle ABC$, D and E are points on sides AB and AC, such that DE || BC. If AD = x, DB = $x - 2$, AE = $x + 2$ and EC = $x - 1$, then the value of x is

(a) 4 (b) 2 (c) 1 (d) 8

13. From a point Q, 13 cm away from the centre of a circle, the length of tangent PQ to the circle is 12 cm. The radius of the circle (in cm) is:

(a) 25 (b) $\sqrt{313}$ (c) 5 (d) 1

14. In the given figure, O is the centre of the circle, PQ is a chord and PT is the tangent at P. If $\angle POQ = 70°$, then $\angle TPQ$ equals to

(a) 70° (b) 45°

(c) 90° (d) 35°

15. If $\cos A = \dfrac{4}{5}$, then the value of tan A is

(a) $\dfrac{3}{5}$ (b) $\dfrac{3}{4}$ (c) $\dfrac{4}{3}$ (d) $\dfrac{5}{3}$

16. The circumference of a new circle is equal to the sum of circumferences of two circles with diameters 34 cm and 28 cm respectively, then the radius of the new circle is

(a) 62 cm (b) 31 cm (c) 12 cm (d) 14 cm
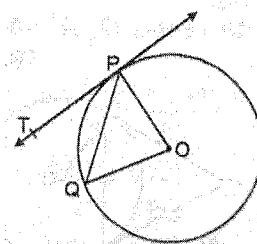
17. A wheel makes 1000 revolutions in covering a distance of 88 km. The radius of the wheel is

    (a) 11 m   (b) 14 m   (c) 12 m   (d) 10 m

18. The probability that a number selected at random from the numbers 1, 2 , 3,........15 is a multiple of 4 is

    (a) $\dfrac{4}{15}$ (b) $\dfrac{2}{15}$ (c) $\dfrac{1}{5}$ (d) $\dfrac{1}{3}$

Q19 and Q20 (ASSERTION and REASONING TYPE)

For questions 19 and 20 choose the option which is most suitable:

a) Both the Assertion and the Reason are correct and the Reason is the correct explanation of the Assertion.

b) The Assertion and the Reason are correct but the Reason is not the correct explanation of the Assertion.

c) Assertion is true but the Reason is false.

d) Assertion is false but the Reason is true.

19. **Assertion :** $x^2 + 7x + 12$ has no real zeroes

    Reason: A quadratic polynomial can have at the most two zeroes.

20. **Assertion:** Two dice are rolled once. The probability of getting pairs of numbers whose product is 12 is $\dfrac{1}{6}$

    Reason: Factors of 12 are 1, 2, 3, 4, 6, 12 hence the required sample space has 6 elements.

SECTION: B (5 x 2 =10)

21. If one zero of the polynomial $2x^2 + 3x + k$ is $\frac{1}{2}$, find the value of k and the other zero.

OR

Find the value of p so that the polynomial (x-3)px + 9 = 0 has equal roots.

22. If p and q are the roots of the equation $x^2 - px + q = 0$ then find the value of p and q.

23. What is the common difference of an AP if $a_{21} - a_7 = 84$.

24. In the given figure, G is the mid-point of the side PQ of Δ PQR and $GH \parallel QR$. Prove that H is the mid-point of the side PR of the triangle PQR.
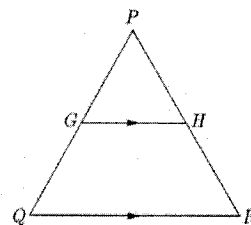
OR

In the following figures, $\triangle ABC \sim \triangle PQR$. Find the value of **y + z**.
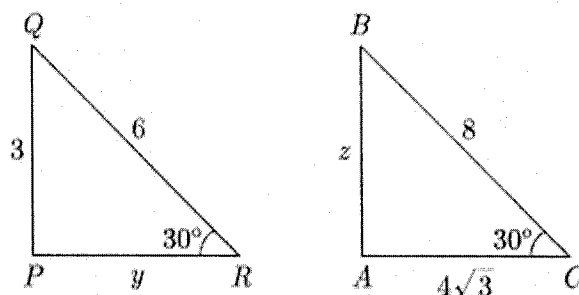
25. The length of the minute hand of clock is 14 cm. Find the area swept by the minute hand in 15 minutes.

SECTION: C (6 x 3 =18)

26. Using method of contradiction, prove that $\sqrt{5}$ is an irrational number.

27. Write all the values of p for which the quadratic equation $x^2 + px + 16 = 0$ has equal roots. Find the roots of the equation so obtained.
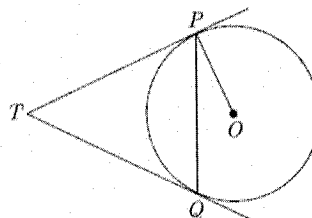
OR

Find for x: $\dfrac{1}{x-2} + \dfrac{2}{x-1} = \dfrac{6}{x}$; $x \neq 0, 1, 2$.

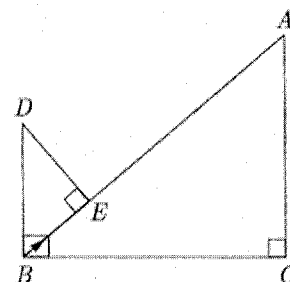28. Prove that points A (-1,0), B (-3,1), C (2,2) and D (-2,1) are the vertices of a parallelogram.

29. Evaluate: $\dfrac{5\cos^2 60° + 4\cos^2 30° - \tan^2 45°}{\sin^2 30° + \cos^2 60°}$ **OR** Prove that: $\dfrac{\sin\theta - 2\sin^3\theta}{2\cos^3\theta - \cos\theta} = \tan\theta$

30. In the given figure, two tangents TP and TQ are drawn to circle with centre O from an external point T. Prove that $\angle PTQ = 2\angle OPQ$.

31. In the given figure, $DB \perp BC, DE \perp AB$ and $AC \perp BC$.

Prove that $\dfrac{BE}{DE} = \dfrac{AC}{BC}$.

SECTION: D (4 x 5 =20)

32. Draw the graph of the following equations:

2x – y = 1 and x + 2y = 13

Write the solution from the graph and shade the triangular region formed by the lines and the y-axis.
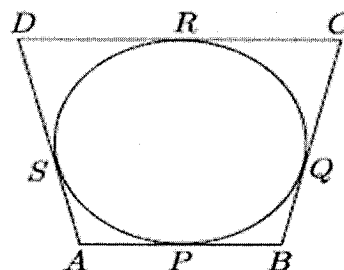
A fraction become $\dfrac{9}{11}$ if 2 is added to both numerator and denominator. If 3 is added to both numerator and denominator it becomes $\dfrac{5}{6}$. Find the fraction.

33. From the top of a 7 m high building, the angle of elevation of the top of a tower is 60° and the angle of depression of its foot is 45°. Find the height of the tower. (use $\sqrt{3} = 1.732$).

OR

As observed from the top of a 100 m high light house from the sea-level, the angles of depression of two ships are 30° and 45°. If one ship is exactly behind the other on the same side of the light house, find the distance between the two ships (use $\sqrt{3} = 1.732$).

34. a) Prove: Tangents drawn from an external point to the same circle are equal in length

   b) In the given figure, a circle touches all the four sides of quadrilateral $ABCD$ with AB = 6cm, BC=7cm and CD = 4cm, then what is the length of AD?

35. If $\tan\theta = \dfrac{1}{\sqrt{5}}$,

   a) Evaluate: $\dfrac{\cosec^2\theta - \sec^2\theta}{\cosec^2\theta + \sec^2\theta}$

   b) Verify the identity: $\sin^2\theta + \cos^2\theta = 1$

SECTION: E (4 x 3 =12)

CASE BASED QUESTIONS

36. **CONTEST PRIZES:** A contest offers 15 prizes. The 1st prize is of Rs 5000 and each successive prize is Rs 250 less than the preceding prize.

   i) Write the arithmetic progression for the above situation up to three terms.

   ii) What is the value of the 15th prize?

iii) What is the total amount of money distributed in prizes?

OR

iii) Find the total amount of money distributed for last 10 prizes.

37. A national park is an area set aside by the government to preserve and protect the natural environment. The graph below shows a map of the National Park. The shaded areas indicate woods. The plain areas indicate meadows and fields without trees. Point O on the graph represents the location of the park's supervisor's office, and points P and Q are ranger's towers.
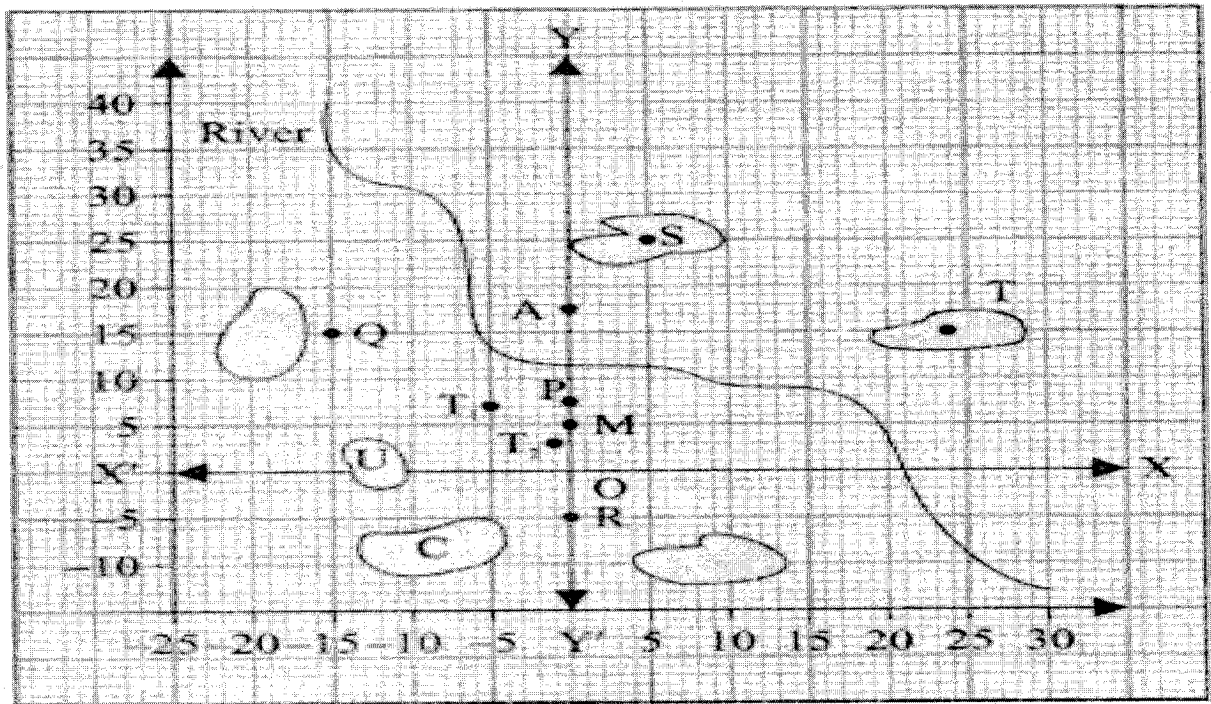
Based on the above map or otherwise answer the following:

(a) What is the distance between the towers P (0, 7.5) and Q (-15, 15)?

(b) There is a circular pond in the park. The end points of a diameter of it are (-6, 3) and (6,4). Find the coordinates of the center of the pond.

(c) Find the coordinates of a point on *x*-axis (other than O) equidistant from the points R (0, -5) and M (0, 5).

38. Double-six Dominos: It is a game played with the 28 numbered or dotted tiles shown in the diagram. The 28 dominoes are placed in a bag, shuffled, and then one domino is randomly drawn. Answer the following.
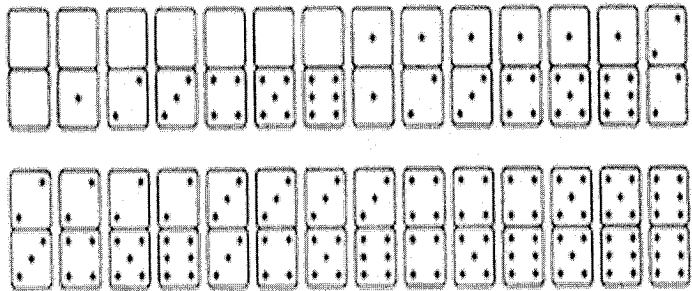
(i) What is the probability of selecting a domino on which the total number of dots are at most three?

(ii) What is the probability of selecting a domino on which the total number of dots are greater than 9?

OR

(ii) What is the probability of selecting a domino on which both the halves of the domino has equal number of dots?

****END OF THE QUESTION PAPER****

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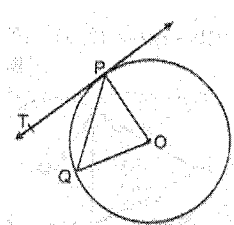MAXIMUM MARKS:80

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- Use of calculator not permitted.
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SECTION: A (20 x 1=20)

Choose the correct answer for each of the following:

1. A system of simultaneous linear equations is said to be inconsistent, if it has

    (a) one solution   (b) two solutions   (c) no solutions   (d) infinite solutions

2. The discriminant of the quadratic equation $3x^2 - 4x - 2 = 0$

    (a) 40   (b) 20   (c) 24   (d) 48

3. In $\triangle ABC$, D and E are points on sides AB and AC, such that DE || BC. If AD = x, DB = x - 2, AE = $x + 2$ and EC = x - 1, then the value of x is

    (a) 4   (b) 2   (c) 1   (d) 8

4. The sum of first 20 odd natural numbers is:

    (a) 100   (b) 210   (c) 400   (d) 420

5. A wheel makes 1000 revolutions in covering a distance of 88 km. The radius of the wheel is

    (a) 11 m   (b) 14 m   (c) 12 m   (d) 10 m

6. If k, $2k$ -1 and $2k$ +1 are three consecutive terms of an A.P., then the value of k is:

    (a) 2   (b)3   (c) -3   (d)5

7. If the last term of the A.P. 5,3,1,-1,…. is − 41, then the A.P. consists of:

   (a) 46 terms   (b) 25 terms   (c) 24 terms   (d) 23 terms

8. From a point Q, 13 cm away from the center of a circle, the length of tangent PQ to the circle is 12 cm. The radius of the circle (in cm) is

   (a) 25   (b) $\sqrt{313}$ (c)5   (d) 1

9. If $\cos A = \dfrac{4}{5}$, then the value of tan A is

   (a) $\dfrac{3}{5}$ (b) $\dfrac{3}{4}$ (c)$\dfrac{4}{3}$ (d) $\dfrac{5}{3}$

10. The probability that a number selected at random from 1, 2, 3,……..15 is a multiple of 4:

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13. In the given figure, *O* is the center of the circle, *PQ* is a chord and *PT* is the tangent at P. If $\angle POQ = 70°$, then $\angle TPQ$ equals to

    (a)70°   (b) 45°   (c)90°   (d)35°

14. The mid-point of segment AB is the point P (0, 4). If the coordinates of B are (-2, 3), then the coordinates of A are:

    (a) (2, 5)   (b (-2, -5)   (c) (2, 9)   (d) (-2, 11)

15. If α and β are the zeroes of a polynomial such that α+β= -6 and αβ = - 4, then the polynomial is

    (a) $x^2 - 6x - 4 = 0$ (b) $x^2 + 6x - 4 = 0$ (c) $x^2 + 6x + 4 = 0$ (d) $x^2 - 6x + 4 = 0$

16. Two dice are thrown together. The probability of getting the same number on both the dice is:

    (a) $\dfrac{1}{2}$ (b) $\dfrac{1}{3}$ (c) $\dfrac{1}{6}$ (d) $\dfrac{1}{12}$

17. If the point C (*k*, 4) divides the joining of points A (2,6) and B (5,1) in the ratio 2:3, then the value of *k* is:

(a) 16 (b) $\dfrac{28}{5}$ (c) $\dfrac{16}{5}$ (d) $\dfrac{8}{5}$

18. The sum of the exponents of the prime factors in the prime-factorization of 196 is:

   (a) 3 (b) 4 (c) 5 (d) 2

Q19 and Q20 (ASSERTION and REASONING TYPE)

Mark the option which is most suitable:

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19. **Assertion** : $x^2 + 7x + 12$ has no real zeroes

   Reason: A quadratic polynomial can have at the most two zeroes.

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   Reason: Factors of 12 are 1, 2, 3, 4, 6, 12 hence the required sample space has 6 elements.

SECTION: B (5 x 2 =10)

21. What is the common difference of an AP if $a_{21} - a_7 = 84$.

22. The length of the minute hand of clock is 14 cm. Find the area swept by the minute hand in 15 minutes.

23. If p and q are the roots of the equation $x^2 - px + q = 0$ then find the value of p and q.

24. In the given figure, G is the mid-point of the side PQ of $\triangle PQR$ and $GH \parallel QR$. Prove that H is the mid-point of the side PR of the triangle PQR.

OR
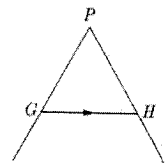
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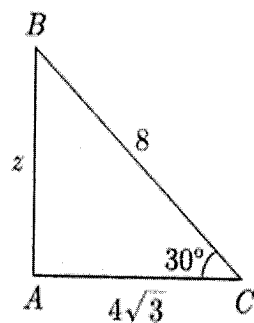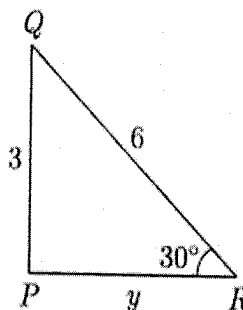
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25. If one zero of the polynomials $2x^2 + 3x + k$ is $\frac{1}{2}$, find the value of k and the other zero.

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SECTION: C (6 x 3 =18)

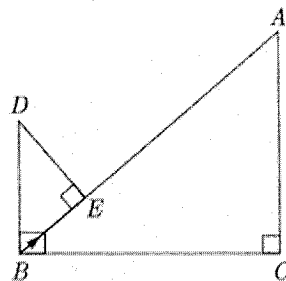26. Prove that points A (-1, 0), B (-3, 1) ,C (2, 2) and D (-2, 1) are the vertices of a parallelogram.

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Prove that: $\dfrac{\sin\theta - 2\sin^3\theta}{2\cos^3\theta - \cos\theta} = \tan\theta$
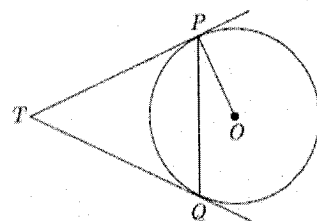
28. In the given figure, $DB \perp BC, DE \perp AB$ and AC $\perp$ BC.

Prove that $\dfrac{BE}{DE} = \dfrac{AC}{BC}$.

29. Using method of contradiction prove that $\sqrt{5}$ is an irrational number

30. In figure, two tangents TP and TQ are drawn to circle with center O from an external point T. Prove that $\angle PTQ = 2\angle OPQ$.

31. Write all the values of p for which the quadratic equation $x^2 + px + 16 = 0$ has equal roots. Find the roots of the equation so obtained.

OR

Find for x: $\dfrac{1}{x-2} + \dfrac{2}{x-1} = \dfrac{6}{x}$; $x \neq 0, 1, 2$.

SECTION: D (4 x 5 =20)

32. If $\tan\theta = \dfrac{1}{\sqrt{5}}$,

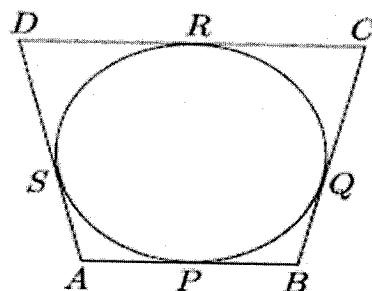   a) Evaluate: $\dfrac{\cosec^2\theta - \sec^2\theta}{\cosec^2\theta + \sec^2\theta}$

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35. Draw the graph of the following equations:

$2x - y = 1, x + 2y = 13$

Write the solution from the graph and shade the triangular region formed by the lines and the y-axis.

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A fraction become $\frac{9}{11}$ if 2 is added to numerator and denominator. If 3 is added to numerator and denominator it becomes $\frac{5}{6}$. Find the fraction.

SECTION: E (3 x 4 =12)
## CASE BASED QUESTIONS

36. A national park is an area set aside by the government to preserve and protect the natural environment. The graph below shows a map of the National Park. The shaded areas indicate woods. The plain areas indicate meadows and fields without trees. Point O on the graph represents the location of the park's supervisor's office, and points P and Q are ranger's towers.
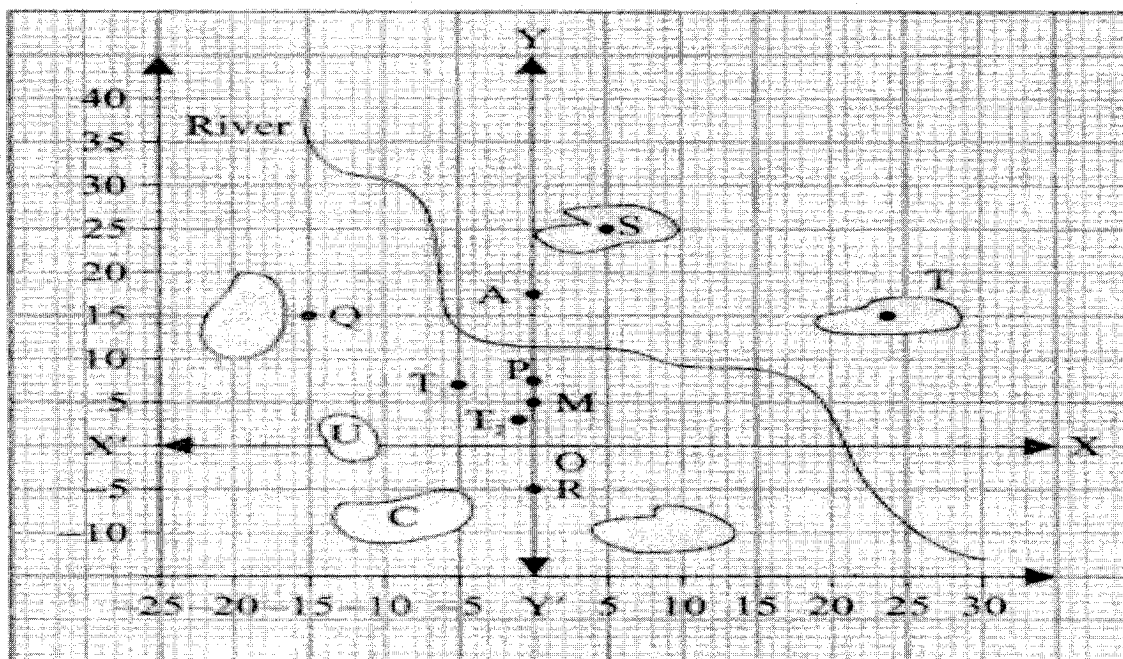
Based on the above map or otherwise answer the following:

(a) What is the distance between the two very old trees T_1 (-5, 8) and T_2 (-1, 3)?

(b) There is a circular pond in the park. The end points of a diameter of it are (-8, 3) and (4, 4). Find the coordinates of the center of the pond.

(c) Find the coordinates of a point on x-axis (other than O) equidistant from the points R (0, -5) and M (0, 5).

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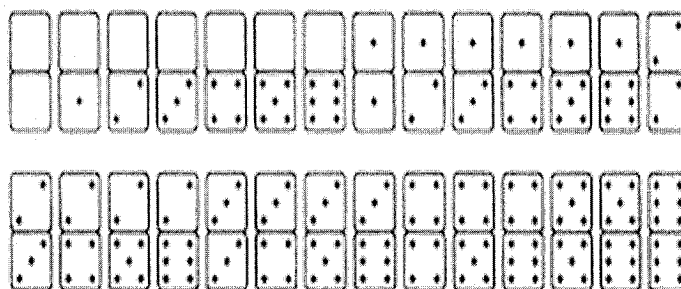
Based on above information answer the following.

(i) What is the probability of selecting a domino on which the total number of dots are at most 4?

(ii) What is the probability of selecting a domino on which the total number of dots are greater than 10?

OR

What is the probability of selecting a domino on which both the halves of the domino has equal number of dots?

38.   **CONTEST PRIZES:** A contest offers 15 prizes. The 1st prize is of Rs 5000 and each successive prize is Rs 250 less than the preceding prize.

i) Write the arithmetic progression for the above situation up to four terms.

ii) What is the value of the 12th prize?

iii) What is the total amount of money distributed in first 11 prizes?

OR
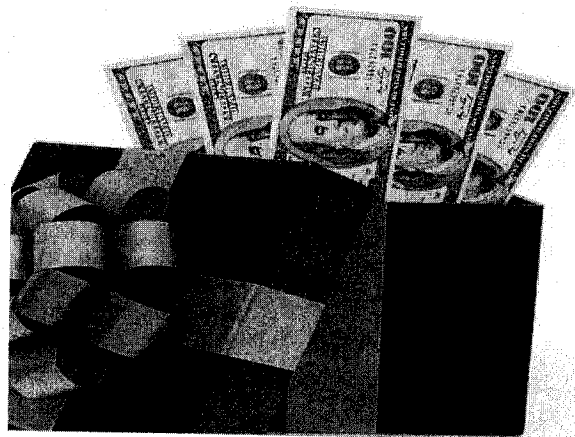
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SECTION: A (20 x 1=20)

Choose the correct answer for each of the following:
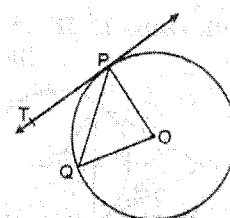
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2. If the point C $(k, 4)$ divides the joining of points A $(2,6)$ and B $(5,1)$ in the ratio 2 : 3, then the value of k is:

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3. The sum of first 20 odd natural numbers is:

    (a) 100   (b) 210   (c) 400   (d) 420

4. A wheel makes 1000 revolutions in covering a distance of 88 km. The radius of the wheel is

    (a) 11 m   (b) 14 m   (c) 12 m   (d) 10 m

5. In $\triangle ABC$, D and E are points on sides AB and AC, such that DE|| BC. If AD = x, DB = x - 2, AE = x + 2 and EC = x - 1, then the value of x is

    (a) 4   (b) 2   (c) 1   (d) 8

6. The sum of exponents of prime factors in the prime-factorization of 196 is:

   (a) 3   (b) 4   (c) 5   (d) 2

7. The mid-point of segment AB is the point P (0,4). If the coordinates of B are (-2,3), then the coordinates of A are:

   (a) (2,5)   (b) (-2, -5)   (c) (2,9)   (d) (-2,11)

8. If $\cos A = \dfrac{4}{5}$, then the value of $\tan A$ is

   (a) $\dfrac{3}{5}$ (b) $\dfrac{3}{4}$ (c) $\dfrac{4}{3}$ (d) $\dfrac{5}{3}$

9. The circumference of a new circle is equal to the sum of circumferences of two circles with diameters 34 cm and 28 cm respectively, then the radius of the new circle is

   (a) 62 cm   (b) 31 cm   (c) 12 cm   (d) 14 cm

10. Two dice are thrown together. The probability of getting the same number on both the dice is:

    (a) $\dfrac{1}{2}$ (b) $\dfrac{1}{3}$ (c) $\dfrac{1}{6}$ (d) $\dfrac{1}{12}$

11. If α and β are the zeroes of a polynomial such that $\alpha + \beta = -6$ and $\alpha\beta = -4$, then write the polynomial.

    (a) $x^2 - 6x - 4 = 0$ (b) $x^2 + 6x - 4 = 0$

    (c) $x^2 + 6x + 4 = 0$ (d) $x^2 - 6x + 4 = 0$

12. If $k, 2k - 1$ and $2k + 1$ are three consecutive terms of an A.P., then the value of k is:

    (a) 2   (b) 3   (c) -3   (d) 5

13. From a point Q, 13 cm away from the centre of a circle, the length of tangent PQ to the circle is 12 cm. The radius of the circle (in cm) is:

    (a) 25   (b) $\sqrt{313}$ (c) 5   (d) 1

14. A system of simultaneous linear equations is said to be inconsistent, if it has

    a) one solution   (b) two solutions   (c) no solutions   (d) infinite solutions

15. The probability that a number selected at random from 1, 2, 3,......15 is a multiple of 4 is

    a) $\dfrac{4}{15}$ (b) $\dfrac{2}{15}$ (c) $\dfrac{1}{5}$ (d) $\dfrac{1}{3}$

16. The discriminant of the quadratic equation $3x^2 - 4x - 2 = 0$

    (a) 40   (b) 20   (c) 24   (d) 48

17. The H.C.F. $(a, b) = 2$ and L.C.M. $(a, b) = 27$. What is the value $a \times b$?

(a) 44   (b) 54   (c) 56   (d) 68

18. In the given figure, O is the centre of the circle, PQ is a chord and
    PT is the tangent at P. If $\angle POQ = 70°$, then $\angle TPQ$ equals to

(a)70°   (b) 45°   (c)90°   (d)35°

Q19 and Q20 (ASSERTION and REASONING TYPE)

Mark the option which is most suitable:

a) Both the Assertion and the Reason are correct and the Reason is the   correct explanation of the Assertion.

b) The Assertion and the Reason are correct but the Reason is not the correct explanation of the Assertion.

c) Assertion is true but the Reason is false.

d) Assertion is false but the Reason is true.

19. **Assertion :** $x^2 + 7x + 12$ has no real zeroes

    Reason: A quadratic polynomial can have at the most two zeroes.

20. **Assertion:** Two dice are rolled once. The probability of getting pairs of numbers whose product is 12 is $\frac{1}{6}$

    Reason: Factors of 12 are 1, 2, 3, 4, 6, 12 hence the required sample space has 6 elements.
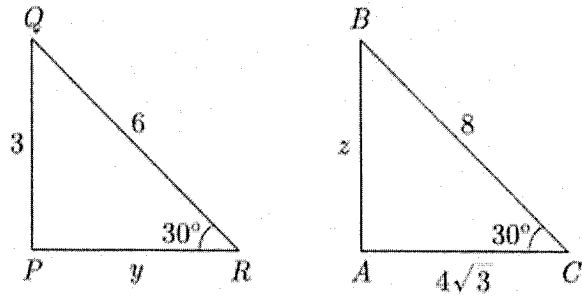
SECTION: B (5 x 2 =10)

21. The length of the minute hand of clock is 14 cm. Find the area swept by the minute hand in 15 minutes.

22. In the given figure, G is the mid-point of the side PQ of
    $\triangle PQR$ and $GH \parallel QR$. Prove that H is the mid-point of
    the side PR of the triangle PQR.

OR
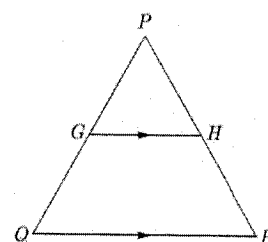
In the given figure, $\Delta ABC \sim \Delta PQR$.

Find the value of $y + z$.

23. If one zero of the polynomials $2x^2 + 3x + k$ is $\frac{1}{2}$, find the value of k and the other zero.

OR

Find the value of p so that the polynomial $(x-3)px + 9 = 0$ has equal roots.

24. What is the common difference of an AP if $a_{21} - a_7 = 84$.

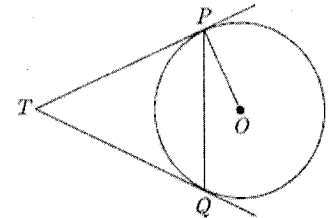25. If a and b are the roots of the equation $x^2 - ax + b = 0$ then, find the value of a and b.

SECTION: C (6 x 3 =18)

26. Evaluate: $\dfrac{5\cos^2 60° + 4\cos^2 30° - \tan^2 45°}{\sin^2 30° + \cos^2 60°}$

OR

Prove that: $\dfrac{\sin\theta - 2\sin^3\theta}{2\cos^3\theta - \cos\theta} = \tan\theta$

27. Prove that points A (-1,0), B (-3,1) ,C (2,2) and D (-2,1) are the vertices of a parallelogram.

28. In figure, two tangents TP and TQ are drawn to circle with center O from an external point T.
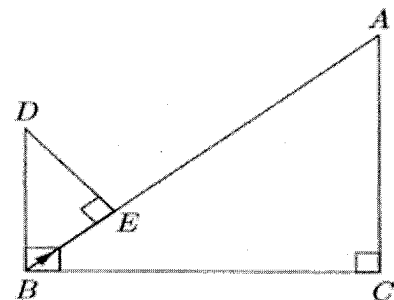
Prove that $\angle PTQ = 2\angle OPQ$.

29. Write all the values of k for which the quadratic equation $x^2 + kx + 16 = 0$ has equal roots. Find the roots of the equation so obtained.

OR

Find for x: $\dfrac{1}{x-2} + \dfrac{2}{x-1} = \dfrac{6}{x}$; $x \neq 0, 1, 2$.

30. In the given figure, $DB \perp BC, DE \perp AB$ and AC $\perp$ BC.

Prove that $\dfrac{BE}{DE} = \dfrac{AC}{BC}$.

31. Using method of contradiction prove that $\sqrt{3}$ is an irrational number.

SECTION: D (4 x 5 =20)

32. From the top of a 7 m high building, the angle elevation of the top of a tower is 60° and the angle of depression of its foot is 45°. Find the height of the tower. (use $\sqrt{3} = 1.732$).

OR

As observed from the top of a 100 m high light house from the sea-level, the angles of depression of two ships are 30° and 45°. If one ship is exactly behind the other on the same side of the light house, find the distance between the two ships (use $\sqrt{3} = 1.732$).

33. If $\tan\theta = \dfrac{1}{\sqrt{5}}$,

    a) Evaluate: $\dfrac{\csc^2\theta - \sec^2\theta}{\csc^2\theta + \sec^2\theta}$

    b) Verify the identity: $\sin^2\theta + \cos^2\theta = 1$

34. Draw the graph of the following equations:

    $2x - y = 1, x + 2y = 13$

    Write the solution from the graph and shade the triangular region formed by the lines and the y-axis
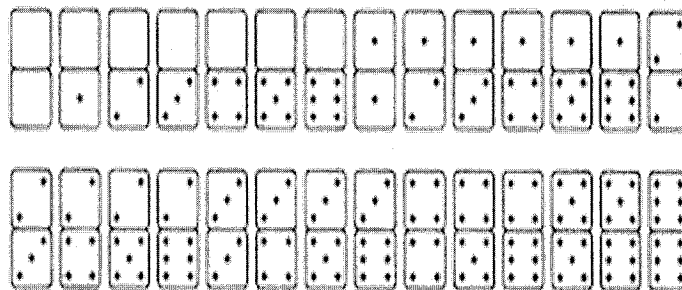
OR

A fraction become $\dfrac{9}{11}$ if 2 is added to both numerator and denominator. If 3 is added to both numerator and denominator it becomes $\dfrac{5}{6}$. Find the fraction.

35. a) Prove: Tangents drawn from an external point to the same circle are equal in length

    b) In the given figure, a circle touches all the four sides of quadrilateral *ABCD* with *AB* = 6cm, *BC*=7cm and *CD* = 4cm, then what is the length of *AD*?
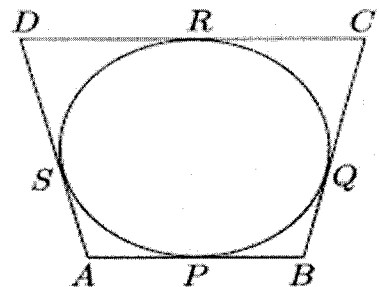
CASE BASED QUESTIONS

36. Double-six Dominos: It is a game played with the 28 numbered or dotted tiles shown in the diagram. The 28 dominoes are placed in a bag, shuffled, and then one domino is randomly drawn. Answer the following.

(i) What is the probability of selecting a domino on which the total number of dots are at most five?

(ii) What is the probability of selecting a domino on which the total number of dots are greater than 10?

OR

What is the probability of selecting a domino on which both the halves of the domino has unequal number of dots?

37. **CONTEST PRIZES:** A contest offers 15 prizes. The 1st prize is of Rs 6000 and each successive prize is Rs 400 less than the preceding prize.

i) Write the arithmetic progression for the above situation up to 3 terms.

ii) What is the value of the 15th prize?

iii) What is the total amount of money distributed in prizes?

OR

iii) Find the total amount of money distributed for last 10 prizes.

38. A national park is an area set aside by the government to preserve and protect the natural environment. The graph below shows a map of the National Park. The shaded areas indicate woods. The plain areas indicate meadows and fields without trees. Point O on the graph represents the location of the park's supervisor's office, and points P and Q are ranger's towers.
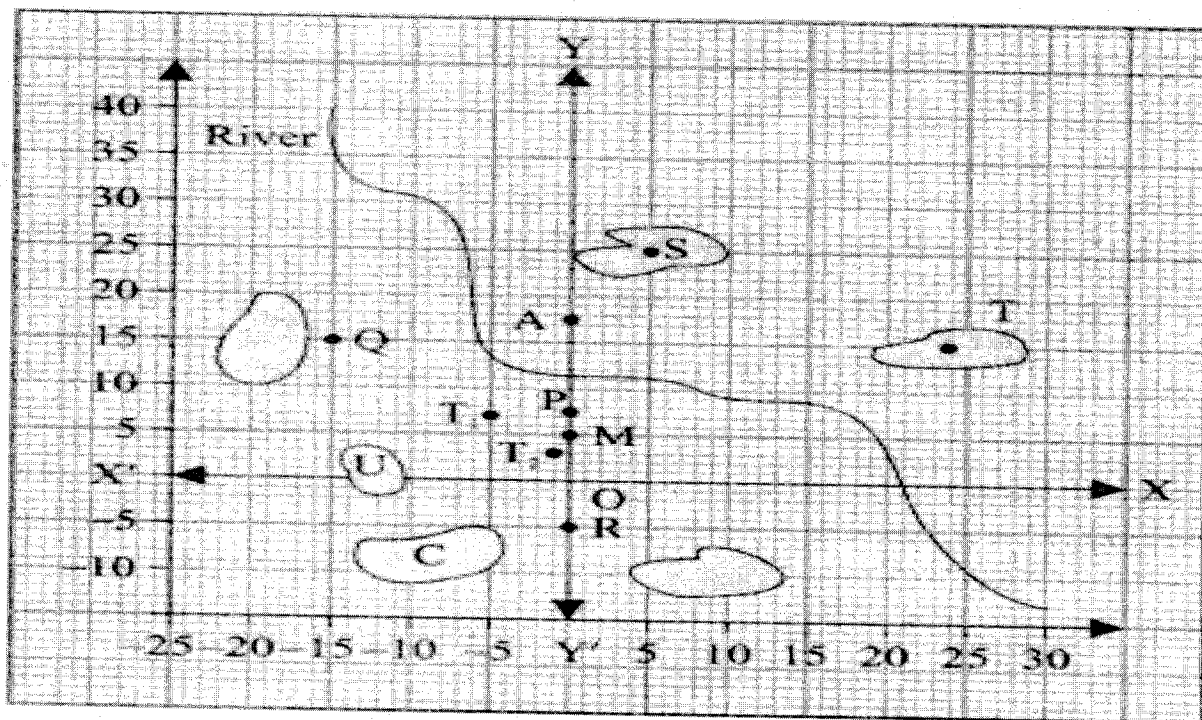
Based on the above map or otherwise answer the following:

(a) What is the distance between the points S (5, 25) and T (24, 15)?

(b) There is a circular pond in the park. The end points of a diameter of it are (-10, 5) and (-15, 10). Find the coordinates of the center of the pond.

(c) Find the coordinates of a point on x-axis (other than O) equidistant from the points R (0, -5) and M (0, 5).

****END OF THE QUESTION PAPER****