

KENDRIYA VIDYALAYA GACHIBOWLI , GPRA CAMPUS HYD - 32
REVISION TEST - 05 FOR CLASS X BOARD EXAM 2021

Max. marks: 60

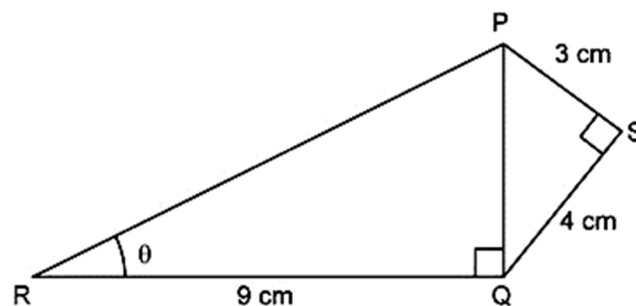
Time Allowed: 2 hrs

SECTION – A (1 MARK EACH)

1. Find after how many places of decimal the decimal form of the $\frac{27}{2^3 \cdot 5^4 \cdot 3^2}$ number will terminate.
2. Given that $\Delta ABC \sim \Delta PQR$. $\frac{AB}{PQ} = \frac{1}{3}$ then find $\frac{ar(\Delta ABC)}{ar(\Delta PQR)}$
3. Find the distance of point P(x, y) from the origin.
4. Write the discriminant of the quadratic equation $(x + 5)^2 = 2(5x - 3)$.
5. If 2 is a zero of a polynomial $p(x) = kx^2 + (3k - 2)x + k$, then find the value of k.
6. Find the sum of the first 10 multiples of 3.
7. If $x = 3$ is one root of the quadratic equation $x^2 - 2kx - 6 = 0$, then find the value of k.
8. If $\tan \alpha = \frac{5}{12}$, find the value of $\sec \alpha$.

SECTION – B (2 MARKS EACH)

9. In the below figure, PS = 3 cm. QS = 4 cm, $\angle PRQ = \theta$, $\angle PSQ = 90^\circ$, $\angle PQ \perp RQ$ and RQ = 9 cm. Evaluate $\tan \theta$.



10. Two concentric circles of radii a and b ($a > b$) are given. Find the length of the chord of the larger circle which touches the smaller circle.
11. Find the value(s) of x, if the distance between the point A(0,0) and B(x, -4) is 5 units.
12. Solve the following pair of linear equations: $3x + 4y = 10$ and $2x - 2y = 2$
13. On a morning walk, three persons step out together and their steps measure 30 cm, 36 cm and 40 cm respectively. When is the minimum distance each should walk so that each can cover the same distance in complete steps?

SECTION – C (3 MARKS EACH)

14. The perpendicular from A on side BC of a ΔABC meets BC at D such that $DB = 3CD$. Prove that $2AB^2 = 2AC^2 + BC^2$.
15. Find the largest number which on dividing 1251, 9377 and 15628 leaves remainders 1, 2 and 3 respectively.

16. Prove that the parallelogram circumscribing a circle is a rhombus.
17. If $\sin (A - B) = 1/2$, $\cos (A + B) = 1/2$, $0^\circ < A + B \leq 90^\circ$, $A > B$, find A and B.
18. Draw a circle of radius 6 cm. From a point 10 cm away from its centre, construct the pair of tangents to the circle and measure their lengths.
19. Prove that: $(\sin A + \operatorname{cosec} A)^2 + (\cos A + \sec A)^2 = 7 + \tan^2 A + \cot^2 A$
20. Solve for x and y: $\frac{2}{\sqrt{x}} + \frac{3}{\sqrt{y}} = 2$; $\frac{4}{\sqrt{x}} - \frac{9}{\sqrt{y}} = -1$
21. If $2/3$ and -3 are the zeroes of the polynomial $ax^2 + 7x + b$, then find the values of a and b.

SECTION – D (5 MARKS EACH)

22. A motorboat whose speed in still water is 9 km/h, goes 15 km downstream and comes to the same spot, in a total time of 3 hours 45 minutes. Find the speed of the stream.

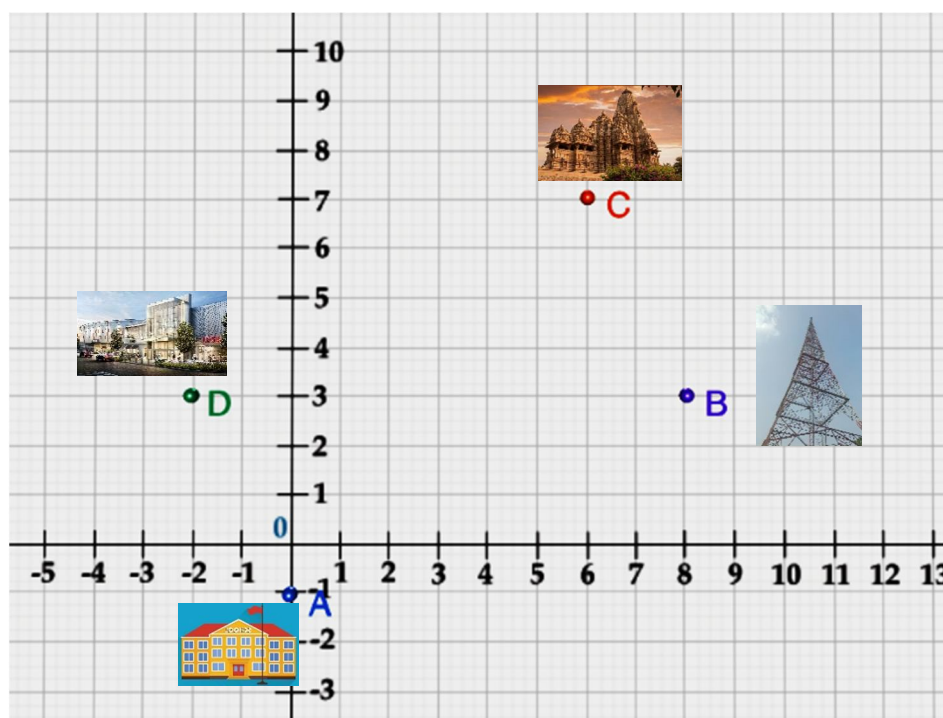
OR

A plane left 30 minutes late than its scheduled time and in order to reach the destination 1500 km away in time it had to increase its speed by 100 km/h from the usual speed. Find its usual speed.

23. If m times the m^{th} term of an Arithmetic Progression is equal to n times its n^{th} term and $m \neq n$, show that the $(m + n)^{\text{th}}$ term of the A.P. is zero.

CASE STUDY-BASED QUESTIONS (Each sub-question carries 1 mark)

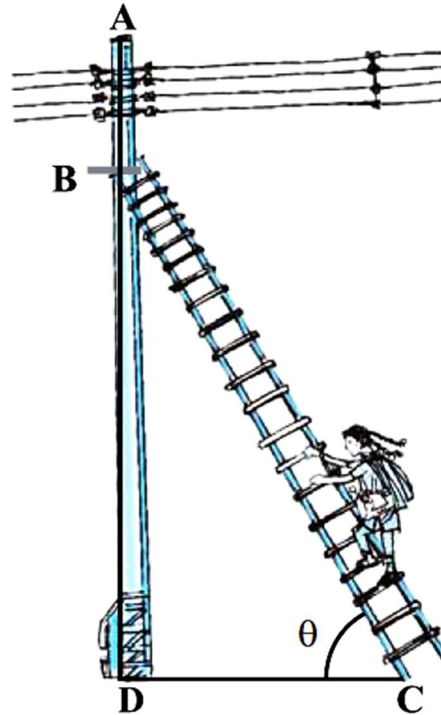
24. One day Ram went to his home town during Dussehra vacation. During his excursion, he noted the four places Temple, TV tower, Mall and School, then he tried to locate all the places using graph sheet by taking his position at origin. He marked A, B, C and D for School, TV Tower, Temple and Mall respectively on the graph sheet by taking scale as 1 unit = 1 km as shown below.



Based on the above information, answer the following questions: (Attempt any four)

- (i) Find the coordinates of A, B, C and D.
- (ii) Find the distance between School and TV Tower.
- (iii) Find the distance between TV tower and Mall.
- (iv) Find the distance between School and Temple.
- (v) Name the quadrilateral ABCD so formed.

25. In a village, group of people complained for an electric fault in their area. On their complained, an electrician reached village to repair an electric fault on a pole of height 5 m. She needs to reach a point 1.3m below the top of the pole to undertake the repair work (see the below figure). She used ladder, inclined at an angle of θ to the horizontal such that $\cos \theta = 0.5$, to reach the required position.



Based on the above information, answer the following questions: (Attempt any four)

- (i) Find the angle of elevation θ .
- (ii) Find the length BD.
- (iii) Find the length of the ladder. (You may take $\sqrt{3} = 1.73$)
- (iv) How far from the foot of the pole should she place the foot of the ladder?
- (v) If the height of pole and distance BD is doubled, then what will be the length of the ladder.

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