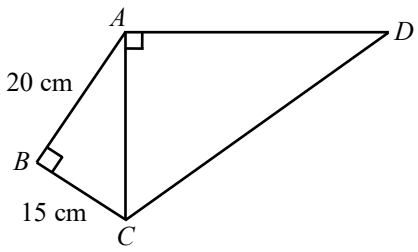
Stage Assessment 8

New Questions Updated

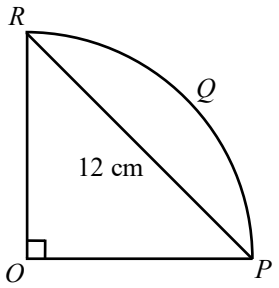
1. The figure shows a quadrilateral $ABCD$. If its area is 900 cm^2, then AD =

A. 16 cm.
B. 24 cm.
C. 52 cm.
D. 60 cm.



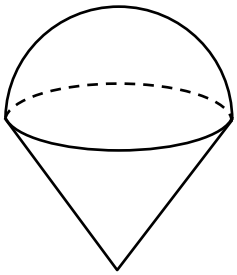
2. In the figure, O is the centre of the sector $OPQR$. Find the area of the segment PQR.

A. $(18\pi - 36)$ cm^2
B. $(9\pi - 18)$ cm^2
C. $(3\pi - 6)$ cm^2
D. $(\pi - 2)$ cm^2



3. In the figure, the solid consists of a hemisphere and a right circular cone with a common base. The height and the slant height of the circular cone are 12 cm and 15 cm respectively. Find the total surface area of the solid.

A. 459π cm^2
B. 432π cm^2
C. 297π cm^2
D. 270π cm^2



4. The volume of a solid right circular cylinder of radius R is half the volume of a solid right circular cone of radius r. If the heights of these two solids are the same, then $R : r$ =

A. 1 : 6.
B. 6 : 1.
C. $1 : \sqrt{6}$.
D. $\sqrt{6} : 1$.

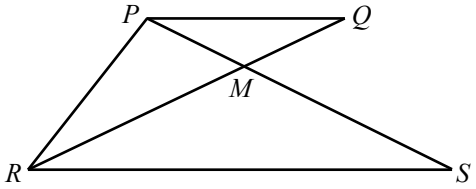
5. In the figure, PS and QR intersect at M. It is given that PQ // RS. If $SM : MP = 5 : 1$, then area of $\triangle PQR$: area of $\triangle RSM$ =

A. 1 : 1.

B. 1 : 5.

C. 2 : 5.

D. 6 : 25.



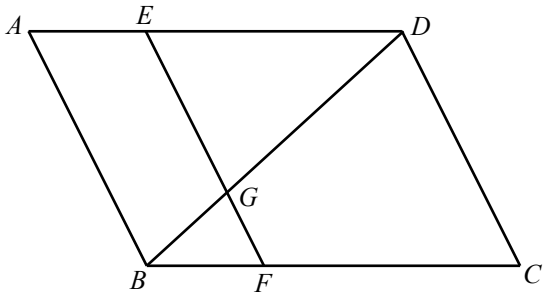
6. In the figure, $ABCD$ is a parallelogram. E and F are points on AD and BC respectively such that AB // EF. BD and EF intersect at G. If $BG : GD = 1 : 3$, then area of $ABGE$: area of $GFCD$ =

A. 1 : 3.

B. 1 : 9.

C. 7 : 9.

D. 7 : 15.



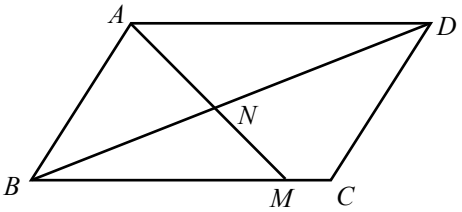
7. In the figure, $ABCD$ is a parallelogram. M is a point lying on BC such that $BM : MC = 7 : 2$. AM and BD intersect at the point N. If the area of $\triangle ABN$ is 126 cm^2, then the area of the quadrilateral $CDNM$ is

A. 134 cm^2.

B. 190 cm^2.

C. 288 cm^2.

D. 352 cm^2.



8. In $\triangle ABC$, $AB : BC : AC = 8 : 17 : 15$. Find tan B : cos C.

A. 8 : 17

B. 17 : 8

C. 15 : 17

D. 17 : 15

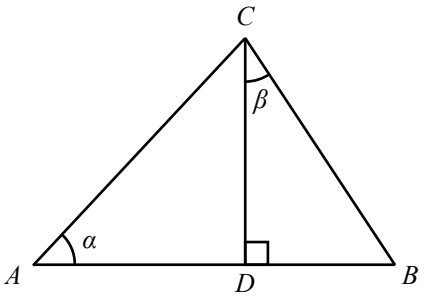
9. In the figure, D is a point lying on AB such that CD is perpendicular to AB. If $AC = k$, then $BC =$

A. $\dfrac{k\sin\alpha}{\cos\beta}$.

B. $\dfrac{k\cos\alpha}{\sin\beta}$.

C. $\dfrac{k\sin\beta}{\cos\alpha}$.

D. $\dfrac{k\cos\beta}{\sin\alpha}$.



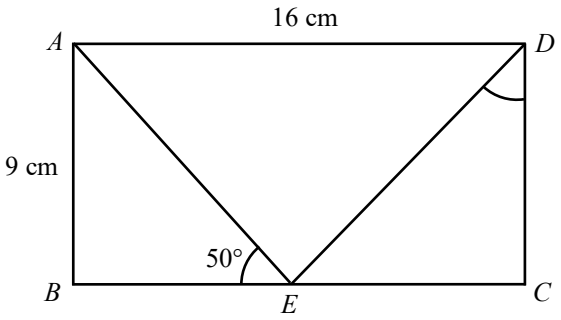
10. In the figure, $ABCD$ is a rectangle. If E is a point lying on BC such that $\angle AEB = 50°$, find $\angle CDE$ correct to 3 significant figures.

A. 41.6°

B. 42.8°

C. 43.2°

D. 46.8°



11. $\cos\theta + \sin\theta\tan\theta =$

A. $2\cos\theta$.

B. $\dfrac{1}{\sin\theta}$.

C. $\dfrac{1}{\cos\theta}$.

D. $\dfrac{1}{\tan\theta}$.

12. $\dfrac{\sin 210°}{1+\cos(90°-\theta)} + \dfrac{\sin 30°}{1+\cos(270°-\theta)} =$

A. 0.

B. $\dfrac{1}{\cos\theta}$.

C. $\dfrac{\cos\theta}{\sin^2\theta}$.

D. $\dfrac{\sin\theta}{\cos^2\theta}$.

13. If P is a moving point in the rectangular coordinate plane such that the perpendicular distance from P to the straight line $2x - 3y + 9 = 0$ is equal to 9, then the locus of P is

A. circle.
B. straight line.
C. pair of parallel lines.
D. pair of perpendicular lines.

14. The coordinates of the points A and B are (4, 0) and (7, 2) respectively. If P is a moving point in the rectangular coordinate plane such that $AP = AB$, then the locus of P is

A. the perpendicular bisector of AB.
B. the straight line which passes through A and B.
C. the angle bisector of $\angle AOB$, where O is the origin.
D. the circle with centre A and radius AB.

15. The coordinates of the points A and B are (–3, 5) and (3, –3) respectively. Let P be a moving point in the rectangular coordinate plane such that P is equidistant from A and B. Find the equation of the locus of P.

A. $3x - 4y + 4 = 0$
B. $3x - 4y - 21 = 0$
C. $3x - 4y + 29 = 0$
D. $4x + 3y - 3 = 0$

16. The x-intercepts of two parallel lines L_1 and L_2 are –7 and 1 respectively, and L_2 passes through (3, 5). Let P be a moving point in the rectangular coordinate plane such that it maintains an equal distance from L_1 and L_2. Find the equation of the locus of P.

A. $5x - 2y - 15 = 0$
B. $5x - 2y + 15 = 0$
C. $2x + 5y - 6 = 0$
D. $2x + 5y + 6 = 0$

17. It is given that Q and R are two distinct points lying on the circle $x^2 + y^2 - 6x + 2y - 71 = 0$. Let P be a moving point in the rectangular coordinate plane such that $PQ = PR$. The equation of the locus of P is $2x + 3y + m = 0$, where m is a constant. Find m.

A. –3
B. –2
C. 2
D. 3