

SECTOR LENGTH & AREA

MATH 12

5.2

- I. Find the length of the arc of a circle with radius 14cm that subtends each sector angle given below. Also find sector area in each case.

1. 2.0 radians 2. 135° 3. 6.1 radians 4. 240° 5. $\frac{2}{3}\pi$ radians
6. 180° 7. 4.2 radians 8. $\frac{5}{4}\pi$ radians 9. 310° 10. 0.6π radians

- II. Find $\sin \theta$, $\cos \theta$ and $\tan \theta$ if each given point is on the terminal side of θ .

1. (4, -3) 2. (6, -12) 3. (-5, -12) 4. (-6, 8) 5. (4, -5) 6. (6, 4)
7. (-2, 6) 8. (-2, -4) 9. (12, 5) 10. (3, 4)

- III. Find $|\cos \theta|$ in each case below.

1. $|\sin \theta| = \frac{4}{5}$ 2. $|\sin \theta| = \frac{12}{13}$ 3. $|\sin \theta| = \frac{2}{3}$
4. $|\sin \theta| = \frac{1}{4}$ 5. $|\sin \theta| = \frac{4}{7}$ 6. $|\sin \theta| = \frac{7}{8}$
7. $\sin \theta = \frac{3}{4}$ & $\frac{\pi}{2} \leq \theta \leq \pi$ 8. $\sin \theta = -\frac{2}{5}$ and $\pi \leq \theta \leq \frac{3}{2}\pi$

ANSWERS:

I.

1. i. 28.0cm ii. 192cm² 2. i. 32.99cm ii. 230.9cm² 3. i. 85.4cm ii. 597.8cm²
4. i. 58.64cm ii. 410.5cm² 5. i. 29.32cm ii. 205.2cm² 6. i. 43.98cm ii. 307.9cm²
7. i. 58.8cm ii. 411.6cm² 8. i. 54.98cm ii. 384.8cm² 9. i. 75.75cm ii. 530.2cm²
10. i. 26.39cm ii. 184.7cm²

II.

#	$\sin \theta$	$\cos \theta$	$\tan \theta$
1	$-\frac{3}{5}$	$\frac{4}{5}$	$-\frac{3}{4}$
2	$\frac{-2\sqrt{5}}{5}$	$\frac{\sqrt{5}}{5}$	-2
3	$-\frac{12}{13}$	$-\frac{5}{13}$	$\frac{12}{5}$
4	$\frac{4}{5}$	$-\frac{3}{5}$	$-\frac{4}{3}$
5	$\frac{-5\sqrt{41}}{41}$	$\frac{4\sqrt{41}}{41}$	$-\frac{5}{4}$
6	$\frac{2\sqrt{13}}{13}$	$\frac{3\sqrt{13}}{13}$	$\frac{2}{3}$
7	$\frac{3\sqrt{10}}{10}$	$-\frac{\sqrt{10}}{10}$	-3
8	$\frac{-2\sqrt{5}}{5}$	$-\frac{\sqrt{5}}{5}$	2
9	$\frac{5}{13}$	$\frac{12}{13}$	$\frac{5}{12}$
10	$\frac{4}{5}$	$\frac{3}{5}$	$\frac{4}{3}$

III.

1. $|\cos \theta| = \frac{3}{5}$ 2. $|\cos \theta| = \frac{5}{13}$ 3. $|\cos \theta| = \frac{\sqrt{5}}{3}$ 4. $|\cos \theta| = \frac{\sqrt{15}}{4}$
5. $|\cos \theta| = \frac{\sqrt{33}}{7}$ 6. $|\cos \theta| = \frac{\sqrt{15}}{8}$ 7. $\cos \theta = -\frac{\sqrt{7}}{4}$ 8. $\cos \theta = -\frac{\sqrt{21}}{5}$