BAA BAA CDA DDD AB
Solutions

MHF4U **QUIZ – CH6** **6.1 - 6.4** **NAME:**

/28

K =12 **A = 8** **T = 8**

Multiple Choice (EACH QUESTION WORTH 2 MARKS with solution).
Identify the choice that best completes the statement or answers the question .Show your solution.

B 1. What is the arc length if the central angle is 45° and the radius of a circle is 3 cm? [2A]

a. 3.75 cm
b. 2.356 cm
c. 0.4166 cm
d. 2.25 cm

$\theta = \frac{45^\circ \cdot \pi}{180^\circ} = \frac{\pi}{4}$

$\theta = \frac{a}{r} \rightarrow a = \theta \cdot r = \frac{\pi}{4} \cdot 3$

A 2. Convert 135° to radians. [2K]

a. $\frac{3\pi}{4}$
b. $\frac{24\,300}{\pi}$
c. $\frac{4\pi}{3}$
d. $\frac{5\pi}{4}$

$\frac{135^3 \cdot \pi}{180_4} = \frac{3\pi}{4}$

A 3. If a ball travels around a circle of radius 4 m in 1.5 minutes, what is the angular speed of the ball? [2T]

a. $\frac{\pi}{45}$ radians/s
b. $\frac{2\pi}{1.5}$ radians/s
c. $\frac{2\pi}{45}$ radians/s
d. $\frac{\pi}{30}$ radians/s

$\omega = \frac{2\pi \cdot}{1.5 \cdot 60} = \frac{2\pi}{90} = \frac{\pi}{45}$

B 4. Which of the following functions has the longest period? [2T]

a. $y = 6\sin(3x) + 20$
b. $y = 2\sin(0.5x) - 11$
c. $y = 7\cos(\pi x) + 13$
d. $y = 8\cos(2x) - 4$

$T = \frac{2\pi}{0.5} = 4\pi$

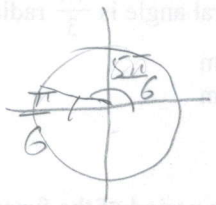
A 5. Convert $\frac{11\pi}{6}$ radians to degrees. [2K]

a. 330°
b. 300°
c. 98.6°
d. 98.18°

$\frac{11\pi \cdot 180^{30^\circ}}{6 \quad \pi} = 330^\circ$

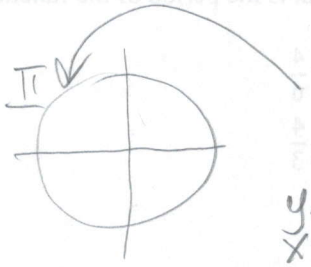
A 6. Which is equivalent to $-\frac{\sqrt{3}}{2}$? [2K]

a. $\cos\left(\frac{5\pi}{6}\right) = \cos\frac{\pi}{6} = -\frac{\sqrt{3}}{2}$
b. $\cos\left(\frac{\pi}{6}\right)$
c. $\sin\left(\frac{\pi}{6}\right)$
d. $\sin\left(\frac{5\pi}{6}\right)$



C 7. In which quadrant is the following true? [2A]
$\csc\theta > 0$ and $\sec\theta < 0$

a. 3
b. 4
c. 2
d. 1



Q II
$y > 0$
$x < 0$

D

8. A man programs his sprinkler system using the equation 15 sin (kt), where t is in seconds. If he wants it to have a period of $\frac{6}{5}$ s, what should k be? [2A]

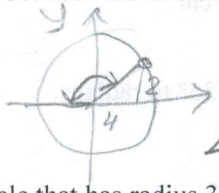
a. $\frac{3\pi}{6}$
c. $\frac{6\pi}{3}$
b. $\frac{5\pi}{6}$
d. $\frac{5\pi}{3}$

$T = \frac{2\pi}{k}$; $k = \frac{2\pi}{T} = \frac{2\pi \times 5}{6} = \frac{5\pi}{3}$

A

9. If a point on the Cartesian plane lies at (4, 2), what is the angle made between the line containing the point and the origin, and the negative x-axis? [2K]

a. 2.034 radians
c. 2.677 radians
b. 0.463 radians
d. 1.523 radians



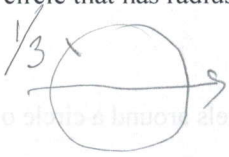
$\theta = \tan^{-1}\left(\frac{2}{4}\right) = 0,463$

$\angle x = 1,57 + 0,463 =$

D

10. Starting on the positive x-axis and moving $\frac{1}{3}$ of the way around a circle that has radius 3 m, how far would one travel? [2T]

a. 360 m
c. 3.14 m
b. 0.69 m
d. 6.28 m



$d = \frac{2\pi r}{3} = 2\pi \frac{3}{3} = 6,28$

A

11. If a man walks around a circle 2.125 times, how many metres did he walk if the radius of the circle is 4 m? [2A]

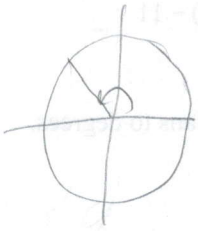
a. 25.525 m
c. 50.265 m
b. 47.123 m
d. 53.407 m

$d = 2,125 \cdot 2\pi \cdot 4 =$

D

12. What is the exact value of $\sin\left(\frac{3\pi}{4}\right)$? [2K]

a. $\frac{2}{\sqrt{2}}$
c. 0.7071
b. $-\frac{1}{\sqrt{2}}$
d. $\frac{1}{\sqrt{2}}$



$\sin\frac{3\pi}{4} = \sin\frac{\pi}{4} = \frac{\sqrt{2}}{2}$

A

13. If the central angle is $\frac{4\pi}{3}$ radians, what should the radius of a circle be to make the arc length 1 m? [2T]

a. 0.238 m
c. 0.424 m
b. 2.356 m
d. 4.188 m

$\theta = \frac{a}{r} \rightarrow r = \frac{a}{\theta} = \frac{1,3}{4\pi} = 0,238$

B

14. What is the period of the function $y = 10\sin\left(\frac{6\pi}{4}\left(x - \frac{\pi}{2}\right)\right) + 25$? [2K]

a. $\frac{4}{6}$
c. $\frac{3}{4}$
b. $\frac{4}{3}$
d. $\frac{6}{3}$

$T = \frac{2\pi}{k} = \frac{2\pi \cdot 4}{6\pi} = \frac{4}{3}$