

Brett Robbins Academic Consulting

Math 30-1 Practice Test

Trigonometry

10 Questions

Original practice questions written to the Alberta curriculum, in the style of past diploma examinations. Work through each question, then check your answers with the key at the end.

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, contact Brett for clarification.

Question 1

The exact value of $\cos\left(\frac{7\pi}{6}\right) + \sin\left(\frac{2\pi}{3}\right)$ is

- A) 0
B) $\frac{\sqrt{3}}{2}$
C) $-\frac{\sqrt{3}}{2}$
D) 1

Question 2

An arc of a circle with radius 12 cm is subtended by a central angle of $\frac{5\pi}{3}$ radians.

The length of the arc is

- A) 10π cm
B) 20π cm
C) 40π cm
D) 60π cm

Question 3

The point $(-5, 12)$ lies on the terminal arm of an angle θ in standard position.

The exact value of $\sin\theta + \cos\theta$ is

- A) $\frac{17}{13}$
B) $-\frac{7}{13}$
C) $\frac{7}{13}$
D) $\frac{5}{13}$

Question 4

The measure of an angle of $\frac{7\pi}{5}$ radians, in degrees, is

- A) 126°
B) 252°
C) 504°
D) 140°

Question 5

The number of solutions to the equation $2\sin^2 x - \sin x - 1 = 0$ on the interval $0 \leq x < 2\pi$ is

- A) 1
- B) 2
- C) 3
- D) 4

Question 6

An expression equivalent to $\sin^2 x(1 + \cot^2 x)$ is

- A) $\tan^2 x$
- B) $\sin^2 x$
- C) $\sec^2 x$
- D) 1

Question 7

For the function $y = 3\cos(2(x - \frac{\pi}{4})) + 1$, the maximum value and period are

- A) Maximum: 4

Period: π

- B) Maximum: 3

Period: π

- C) Maximum: 4

Period: 2π

- D) Maximum: 2

Period: $\frac{\pi}{2}$

Question 8

The exact value of $\csc\left(\frac{4\pi}{3}\right)$ is

A) $\frac{2\sqrt{3}}{3}$

B) $-\frac{2\sqrt{3}}{3}$

C) $-\frac{\sqrt{3}}{2}$

D) -2

Question 9

If $\sin\theta = \frac{3}{5}$ and θ is in Quadrant II, then the exact value of $\cos\theta$ is

A) $\frac{4}{5}$

B) $-\frac{3}{4}$

C) $\frac{4}{3}$

D) $-\frac{4}{5}$

Question 10

If $\cos\theta = -\frac{7}{25}$ and θ is in Quadrant III, then $\tan\theta = \frac{a}{b}$ in lowest terms.

The value of $a + b$ is

Answer Key

- | | | |
|------|------|--------|
| 1. A | 5. C | 9. D |
| 2. B | 6. D | 10. 31 |
| 3. C | 7. A | |
| 4. B | 8. B | |

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