

A2.A.64: Using Inverse Trigonometric Functions 3: Use inverse functions to find the measure of an angle, given its sine, cosine, or tangent

1 The value of $\sin(\text{Arc cos } 1)$ is

- 1) 1
- 2) $\frac{1}{2}$
- 3) $\frac{1}{2}\sqrt{3}$
- 4) 0

2 The value of $\tan(\text{Arc sin } 1)$ is

- 1) 1
- 2) -1
- 3) 90
- 4) undefined

3 If $\theta = \text{Arc cos } \frac{\sqrt{2}}{2}$, what is the value of $\tan \theta$?

- 1) 1
- 2) $\sqrt{2}$
- 3) $\sqrt{3}$
- 4) $\frac{\sqrt{3}}{3}$

4 If $f(x) = \sin(\text{Arc tan } x)$, the value of $f(1)$ is

- 1) $\sqrt{2}$
- 2) $\frac{\sqrt{2}}{2}$
- 3) $\frac{\sqrt{3}}{2}$
- 4) $\frac{\sqrt{3}}{3}$

5 The value of $\cos\left(\text{Arc sin } \frac{\sqrt{3}}{2}\right)$ is

- 1) 1
- 2) $\frac{1}{2}$
- 3) $\frac{\sqrt{3}}{3}$
- 4) $\sqrt{3}$

6 If $y = \sin\left(\text{Arc cos } \frac{1}{2}\right)$, the value of y is

- 1) $\frac{1}{2}$
- 2) $\frac{\sqrt{3}}{2}$
- 3) 30°
- 4) 60°

7 What is the exact value of $\cos\left(\text{Arc sin } \frac{1}{2}\right)$?

- 1) $\frac{1}{2}$
- 2) $\sqrt{3}$
- 3) $\frac{\sqrt{3}}{2}$
- 4) $\frac{\sqrt{2}}{2}$

8 The value of $\cos\left(\text{Arc tan } \sqrt{3}\right)$ is

- 1) 1
- 2) $\frac{1}{2}$
- 3) $\frac{1}{2}\sqrt{3}$
- 4) $\frac{1}{2}\sqrt{2}$

- 9 What is the value of $\tan\left(\text{Arc cos} - \frac{3}{5}\right)$?
- $\frac{5}{3}$
 - $\frac{4}{3}$
 - $-\frac{3}{4}$
 - $-\frac{4}{3}$
- 10 What is the value of y if $y = \sin\left(\text{Arctan} \frac{5}{12}\right)$?
- $\frac{5}{13}$
 - $\frac{12}{13}$
 - $\frac{13}{12}$
 - $\frac{13}{5}$
- 11 What is the value of $\tan\left(\text{Arc cos} \frac{5}{13}\right)$?
- $\frac{12}{13}$
 - $\frac{5}{12}$
 - $\frac{12}{5}$
 - $\frac{13}{5}$
- 12 What is the value of $\tan\left(\text{Arc cos} \frac{15}{17}\right)$?
- $\frac{8}{15}$
 - $\frac{8}{17}$
 - $\frac{15}{8}$
 - $\frac{17}{8}$
- 13 If $\sin^{-1}\left(\frac{5}{8}\right) = A$, then
- $\sin A = \frac{5}{8}$
 - $\sin A = \frac{8}{5}$
 - $\cos A = \frac{5}{8}$
 - $\cos A = \frac{8}{5}$
- 14 If $\tan\left(\text{Arc cos} \frac{\sqrt{3}}{k}\right) = \frac{\sqrt{3}}{3}$, then k is
- 1
 - 2
 - $\sqrt{2}$
 - $3\sqrt{2}$
- 15 What is a value of $\cos\left(\text{Arc tan} \frac{2}{3}\right)$?
- $\frac{\sqrt{13}}{3}$
 - $\frac{3\sqrt{13}}{13}$
 - 5
 - 13
- 16 If $\cos \theta = -\frac{5}{13}$ and $\sin \theta > 0$, then $\tan \theta$ is
- $\frac{5}{12}$
 - $-\frac{5}{12}$
 - $\frac{12}{5}$
 - $-\frac{12}{5}$

- 17 If $\tan x = -\frac{2}{3}$ and angle x lies in the second quadrant, what is the value of $\cos x$?

- 1) $\frac{3\sqrt{5}}{5}$
- 2) $-\frac{3\sqrt{5}}{5}$
- 3) $\frac{3\sqrt{13}}{13}$
- 4) $-\frac{3\sqrt{13}}{13}$

- 18 If x is a positive acute angle and $\cos x = \frac{\sqrt{3}}{4}$, what is the exact value of $\sin x$?

- 1) $\frac{\sqrt{3}}{5}$
- 2) $\frac{\sqrt{13}}{4}$
- 3) $\frac{3}{5}$
- 4) $\frac{4}{5}$

- 19 If $\cos \theta = -\frac{3}{4}$ and $\tan \theta$ is negative, the value of $\sin \theta$ is

- 1) $\frac{4}{5}$
- 2) $-\frac{\sqrt{7}}{4}$
- 3) $\frac{7}{4}$
- 4) $\frac{\sqrt{7}}{4}$

- 20 If $\sin \theta = \frac{\sqrt{7}}{4}$ and $\cos \theta = -\frac{3}{4}$, what is $\tan \theta$?

- 1) $\frac{4}{3}$
- 2) $-\frac{\sqrt{7}}{4}$
- 3) $\frac{\sqrt{7}}{3}$
- 4) $-\frac{\sqrt{7}}{3}$

- 21 If $\cos x = -\frac{4}{5}$ and $\tan x > 0$, the value of $\sin x$ is?

- 1) $\frac{3}{5}$
- 2) $\frac{5}{3}$
- 3) $-\frac{5}{3}$
- 4) $-\frac{3}{5}$

- 22 If $\cos \theta = -\frac{4}{5}$ and θ lies in Quadrant II, what is the value of $\tan \theta$?

- 1) $\frac{3}{4}$
- 2) $\frac{4}{3}$
- 3) $-\frac{3}{4}$
- 4) $-\frac{4}{3}$

- 23 If $\sin A = -\frac{7}{25}$ and $\angle A$ terminates in Quadrant IV,

$\tan A$ equals

- 1) $-\frac{7}{25}$
- 2) $-\frac{7}{24}$
- 3) $-\frac{24}{7}$
- 4) $-\frac{24}{25}$

- 24 If $\cos A = \frac{4}{5}$ and A is in Quadrant I, what is the value of $\sin A \cdot \tan A$?

- 1) $\frac{9}{20}$
- 2) $\frac{12}{25}$
- 3) $\frac{16}{25}$
- 4) $\frac{16}{20}$

- 25 If $\sin \theta = -\frac{3}{5}$ and $\cos \theta > 0$, what is the value of $\tan \theta$?

- 1) $\frac{3}{4}$
- 2) $-\frac{3}{4}$
- 3) $\frac{4}{3}$
- 4) $-\frac{4}{3}$

- 26 If θ is a positive acute angle and $\sin \theta = a$, which expression represents $\cos \theta$ in terms of a ?

- 1) \sqrt{a}
- 2) $\sqrt{1-a^2}$
- 3) $\frac{1}{\sqrt{a}}$
- 4) $\frac{1}{\sqrt{1-a^2}}$

- 27 What is the value of $\sin\left(\text{Arc cos } \frac{1}{x}\right)$?

- 1) $\frac{\sqrt{1-x^2}}{x}$
- 2) $\frac{\sqrt{1+x^2}}{x}$
- 3) $\frac{\sqrt{x^2-1}}{x}$
- 4) $\frac{x}{\sqrt{x^2+1}}$

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Answer Section

- | | | |
|----|--------|-----------------|
| 1 | ANS: 4 | REF: 019921siii |
| 2 | ANS: 4 | REF: 010221siii |
| 3 | ANS: 1 | REF: 068427siii |
| 4 | ANS: 2 | REF: 060023siii |
| 5 | ANS: 2 | REF: 069916siii |
| 6 | ANS: 2 | REF: 088618siii |
| 7 | ANS: 3 | REF: 061008b |
| 8 | ANS: 2 | REF: 089320siii |
| 9 | ANS: 4 | REF: 080123siii |
| 10 | ANS: 1 | REF: 089817siii |
| 11 | ANS: 3 | REF: 060322siii |
| 12 | ANS: 1 | |

$$\text{If } \sin \theta = \frac{15}{17}, \text{ then } \cos \theta = \frac{8}{17}. \quad \tan \theta = \frac{\frac{8}{17}}{\frac{15}{17}} = \frac{8}{15}$$

REF: 081508a2

- | | | |
|----|--------|---------------|
| 13 | ANS: 1 | REF: 011112a2 |
| 14 | ANS: 2 | |

$$\tan 30 = \frac{\sqrt{3}}{3}. \quad \text{Arc cos } \frac{\sqrt{3}}{k} = 30$$

$$\frac{\sqrt{3}}{k} = \cos 30$$

$$k = 2$$

REF: 061323a2

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|----|--------|-----------------|
| 15 | ANS: 2 | REF: 060225siii |
| 16 | ANS: 4 | REF: 068417siii |
| 17 | ANS: 4 | REF: 068632siii |
| 18 | ANS: 2 | REF: 080604b |
| 19 | ANS: 4 | REF: 019431siii |
| 20 | ANS: 4 | REF: 010321siii |
| 21 | ANS: 4 | REF: 018628siii |
| 22 | ANS: 3 | |

$$\text{If } \cos \theta = -\frac{4}{5} \text{ and } \theta \text{ lies in Quadrant II, then } \sin \theta = \frac{3}{5}. \quad \tan \theta = \frac{\sin \theta}{\cos \theta} = \frac{\frac{3}{5}}{-\frac{4}{5}} = -\frac{3}{4}$$

REF: 061004b

23 ANS: 2

$$\text{If } \sin A = -\frac{7}{25}, \cos A = \frac{24}{25}, \text{ and } \tan A = \frac{\sin A}{\cos A} = \frac{-\frac{7}{25}}{\frac{24}{25}} = -\frac{7}{24}$$

REF: 011413a2

24 ANS: 1 REF: 069421siii

25 ANS: 2 REF: 010021siii

26 ANS: 2

$$\cos^2 \theta + \sin^2 \theta = 1$$

$$\cos^2 \theta = 1 - \sin^2 \theta$$

$$\sqrt{\cos^2 \theta} = \sqrt{1 - \sin^2 \theta}$$

$$\cos \theta = \sqrt{1 - \sin^2 \theta}$$

REF: 060418b

27 ANS: 3 REF: 010029siii