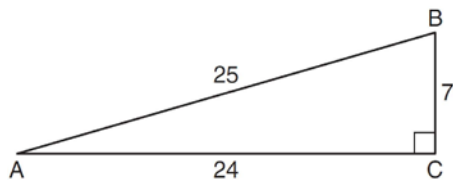
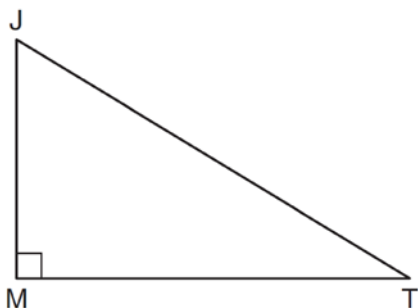


A2.A.55: Express and apply the six trigonometric functions as ratios of the sides of a right triangle

- 1 Which ratio represents $\csc A$ in the diagram below?



- 1) $\frac{25}{24}$
 - 2) $\frac{25}{7}$
 - 3) $\frac{24}{7}$
 - 4) $\frac{7}{24}$
- 2 In the diagram below of right triangle JTM , $JT = 12$, $JM = 6$, and $m\angle JMT = 90^\circ$.



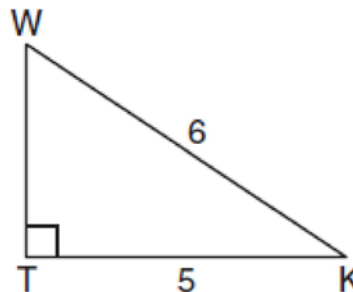
What is the value of $\cot J$?

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

- 3 By law, a wheelchair service ramp may be inclined no more than 4.76° . If the base of a ramp begins 15 feet from the base of a public building, which equation could be used to determine the maximum height, h , of the ramp where it reaches the building's entrance?

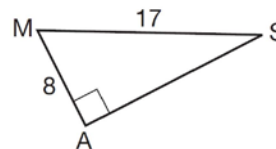
- 1) $\sin 4.76^\circ = \frac{h}{15}$
- 2) $\sin 4.76^\circ = \frac{15}{h}$
- 3) $\tan 4.76^\circ = \frac{h}{15}$
- 4) $\tan 4.76^\circ = \frac{15}{h}$

- 4 In the diagram below of right triangle KTW , $KW = 6$, $KT = 5$, and $m\angle KTW = 90^\circ$.



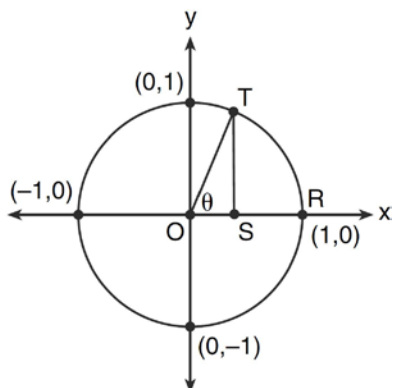
What is the measure of $\angle K$, to the nearest minute?

- 1) $33^\circ 33'$
 - 2) $33^\circ 34'$
 - 3) $33^\circ 55'$
 - 4) $33^\circ 56'$
- 5 In the right triangle shown below, what is the measure of angle S , to the nearest minute?

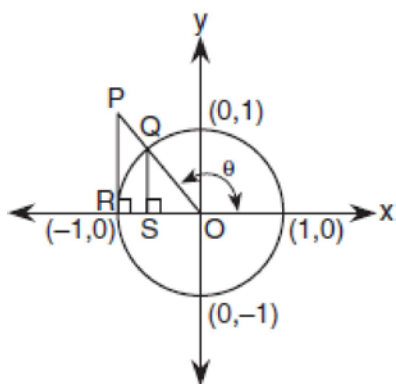


- 1) $28^\circ 1'$
- 2) $28^\circ 4'$
- 3) $61^\circ 56'$
- 4) $61^\circ 93'$

- 6 In the diagram below, the length of which line segment is equal to the exact value of $\sin \theta$?



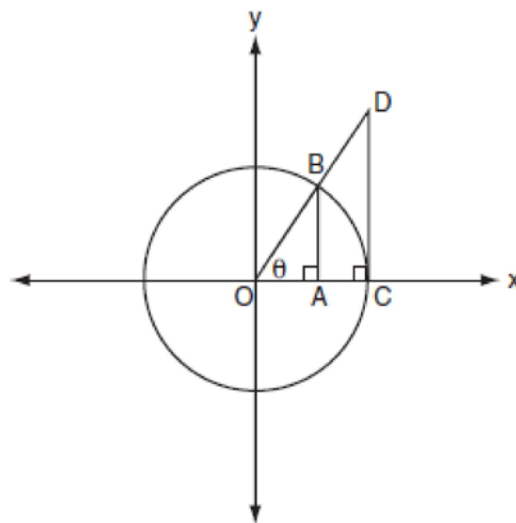
- 1) \overline{TO}
 - 2) \overline{TS}
 - 3) \overline{OR}
 - 4) \overline{OS}
- 7 In the accompanying diagram, \overline{PR} is tangent to circle O at R , $\overline{QS} \perp \overline{OR}$, and $\overline{PR} \perp \overline{OR}$



Which measure represents $\sin \theta$?

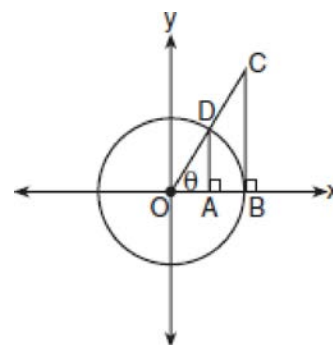
- 1) SO
- 2) RO
- 3) PR
- 4) QS

- 8 The accompanying diagram shows unit circle O , with radius $OB = 1$.



Which line segment has a length equivalent to $\cos \theta$?

- 1) \overline{AB}
 - 2) \overline{CD}
 - 3) \overline{OC}
 - 4) \overline{OA}
- 9 The accompanying diagram shows unit circle O , with radius $OD = 1$.



Which line segment has a length equivalent to $\tan \theta$?

- 1) \overline{AD}
- 2) \overline{BC}
- 3) \overline{OA}
- 4) \overline{OB}

A2.A.55: Express and apply the six trigonometric functions as ratios of the sides of a right triangle

Answer Section

1 ANS: 2 REF: 081010a2

2 ANS: 1

$$\sqrt{12^2 - 6^2} = \sqrt{108} = \sqrt{36} \sqrt{3} = 6\sqrt{3}. \cot J = \frac{A}{O} = \frac{6}{6\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{\sqrt{3}}{3}$$

REF: 011120a2

3 ANS: 3 REF: 061514a2

4 ANS: 1

$$\cos K = \frac{5}{6}$$

$$K = \cos^{-1} \frac{5}{6}$$

$$K \approx 33^\circ 33'$$

REF: 061023a2

5 ANS: 2

$$\sin S = \frac{8}{17}$$

$$S = \sin^{-1} \frac{8}{17}$$

$$S \approx 28^\circ 4'$$

REF: 061311a2

6 ANS: 2 REF: 011315a2

7 ANS: 4 REF: 060520b

8 ANS: 4 REF: 080618b

9 ANS: 2 REF: 080335siii