11 Math

Name:_____

Date:_____

5. Points P and Q are on a unit circle centred about the origin. The terminal arm going through point P makes a principal angle of 210° and the terminal arm going through point Q makes a principal angle of 315°. What are the exact coordinates of points P and Q?

$P(x,y) = P(\cos\theta, \sin\theta)$

$\cos 210° = -\frac{\sqrt{3}}{2}$ $\quad \sin 210 = -\frac{1}{2}$ $\quad \therefore \left(-\frac{\sqrt{3}}{2}, -\frac{1}{2}\right)$

$\theta = 315°$

$\cos 315° = \frac{1}{\sqrt{2}}$, $\sin 315° = -\frac{1}{\sqrt{2}}$

$\therefore \left(\frac{1}{\sqrt{2}}, -\frac{1}{\sqrt{2}}\right)$

6. Determine the exact value of:

a) sin 30° $= \frac{1}{2}$ b) cos 30° $= \frac{\sqrt{3}}{2}$ c) tan 30° $= \frac{1}{\sqrt{3}}$

d) sin 60° $= \frac{\sqrt{3}}{2}$ e) cos 60° $= \frac{1}{2}$ f) tan 60° $= \frac{\sqrt{3}}{1}$

g) sin 45° $= \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2}$ h) cos 45° $= \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2}$ i) tan 45° $= 1$

j) sin 210° $= \frac{-1}{2}$ k) cos 315° $= \frac{1}{\sqrt{2}}$ l) tan 150° $= -\tan 30 = -\frac{1}{\sqrt{3}}$.

7. Determine the roots, where $0° \le \theta \le 360°$:

a) $\sin\theta = \frac{1}{\sqrt{2}}$ b) $\cos\theta = \frac{-1}{\sqrt{2}}$ c) $\tan\theta = \sqrt{3}$

$\theta = 45°$ or $135°$ $\quad \theta = 135°$ or $225°$ $\quad \theta = 60°$ or $180+60 = 240°$.

Solutions:

1. a) 5/3 b) 5/4 c) 5/4 d) 5/3 e) 4/3 f) $\frac{3}{4}$ g) 4.8097 h) 1.1924 i) 0.5543

2. No 3. Yes 4. a) 3rd quadrant b) 54° c) 234° d) $\sin\theta = \frac{-7}{\sqrt{74}}$, $\cos\theta = \frac{-5}{\sqrt{74}}$ 5. P: $\left(-\frac{\sqrt{3}}{2}, -\frac{1}{2}\right)$, Q: $\left(\frac{1}{\sqrt{2}}, -\frac{1}{\sqrt{2}}\right)$

6. a) $\frac{1}{2}$ b) $\frac{\sqrt{3}}{2}$ c) $\frac{1}{\sqrt{3}}$ d) $\frac{\sqrt{3}}{2}$ e) $\frac{1}{2}$ f) $\sqrt{3}$

g) $\frac{1}{\sqrt{2}}$ h) $\frac{1}{\sqrt{2}}$ i) 1 j) $-\frac{1}{2}$ k) $\frac{1}{\sqrt{2}}$ l) $\frac{-1}{\sqrt{3}}$

7. a) 45°, 135° b) 135°, 225° c) 60°, 240°

Textbook: Page 338 #1-13, (skip 6,7... Trig Identities... will be in the unit 6)

11 Math

Name:_____

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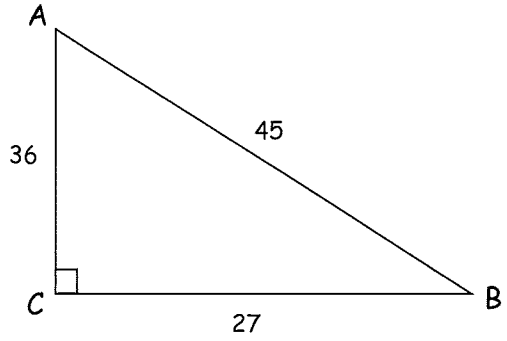
Trigonometry Review

1. Find the desired ratios. Leave a) - f) as a fraction in lowest terms, and round g) - i) to 4 d.p.



a) csc A

$= \frac{1}{\sin A} = \frac{45}{27}$

$= \frac{15}{9} = \frac{5}{3}$

b) csc B $= \frac{1}{\sin B}$

$= \frac{45}{36} = \frac{9}{4}$

c) sec A

$= \frac{1}{\cos A}$

$= 45/36 = \frac{9}{4}$

d) sec B

$= \frac{1}{\cos B} = \frac{45}{27}$

$= 5/3$

e) cot A

$= \frac{1}{\tan A} = \frac{36}{27}$

$= 4/3$

f) cot B

$= \frac{1}{\tan B} = \frac{27}{36}$

$= 3/4$

g) csc 12°

$= \frac{1}{\sin 12}$

$= 4.8097$

h) sec 33°

$= \frac{1}{\cos 30°}$

$= 1.1547$

I) cot 61°

$= \frac{1}{\tan 61}$

$= 0.5543$

2. Does csc A = $\sin^{-1}$ A? Explain.

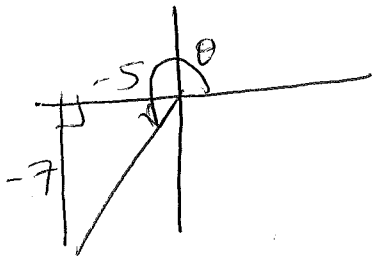
NO. $\csc A = \frac{1}{\sin A}$ $\sin^{-1} A$ means inverse of sin of A

3. Does csc A = $(\sin A)^{-1}$? Explain.

Yes. $\csc A = \frac{1}{\sin A}$ $(\sin A)^{-1} = \frac{1}{\sin A}$

4. Point P(-5, -7) is on the terminal arm of an angle in standard position.

a) Sketch the principal angle, θ.



b) What is the measure of the related acute angle, to the nearest degree?

RAA ⇒ $\tan\beta = 7/5$

$\beta = 54°$

c) What is the measure of θ to the nearest degree?

$\theta = 180 + \beta$

$= 180 + 54 = 234°$

d) Determine sin θ and cos θ as fractions in lowest terms.

$\sin\theta = \frac{O}{H} = \frac{-7}{\sqrt{74}}$ $\cos\theta = \frac{-5}{\sqrt{74}}$