

New stuff practice

1. Write **all solutions** (between  $0^\circ$  and  $360^\circ$ ) to the following equations. Answers should be exact! No Calc

(a)  $\sin^{-1} \theta = \frac{\sqrt{2}}{2}$

$45, 135$

(b)  $\cos^{-1} \theta = \frac{\sqrt{3}}{2}$

$30^\circ, 330^\circ$

(c)  $\sin^{-1} \theta = 0$

$0, 180, 360$

2. Find **all solutions** (between  $0^\circ$  and  $360^\circ$ ) to the following equations. Round to the nearest whole number.

(a)  $\cos^{-1} \theta = .788$

$39^\circ, 322^\circ$

(b)  $\cos^{-1} \theta = -.788$

$142^\circ$   
REF  $\angle = 38$

$142^\circ, 218^\circ$

(c)  $17 + 27 \sin \theta = 10$

$27 \sin \theta = -7$   
 $\sin \theta = -.2593$   
 $-15^\circ$

$195^\circ, 345^\circ$

(d)  $\sin x + \sqrt{2} = -\sin x$

$-\sqrt{2} = 2 \sin x$

$-\frac{\sqrt{2}}{2} = \sin x$

REF  $\angle = 45^\circ$  Q3, Q4

$225^\circ, 315^\circ$

(e)  $2 \tan x + 2\sqrt{3} = 0$

$2 \tan x = -2\sqrt{3}$

$\tan x = -\frac{2\sqrt{3}}{2}$

$\tan x = -\sqrt{3}$

Q2 Q4 REF  $\angle = 60^\circ$

$120^\circ, 300$

(f)  $-6 \sin \theta = -\frac{3}{\sqrt{3}}$

$-6 \sin \theta = -\sqrt{3}$

$\sin \theta = \frac{\sqrt{3}}{-6}$

$\sin \theta = .2887$

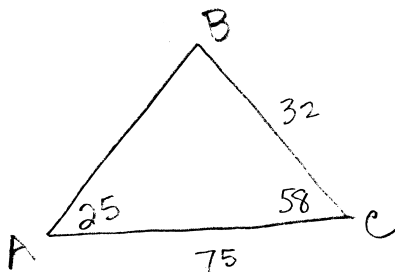
$\theta =$

$16.78, 163.22^\circ$

Rationalize  
denom

3. The following are not necessarily right triangles. Draw a picture. Remember, you can put A, B and C anywhere as long as side  $a$  is opposite  $\angle A$ , side  $b$  is opposite  $\angle B$ , and side  $c$  is opposite  $\angle C$ . Then use the special area formula.

(a) In  $\triangle ABC$ ,  $\angle A = 25^\circ$ ,  $\angle C = 58^\circ$ ,  $a = 32$ , and  $b = 75$   
Find the area



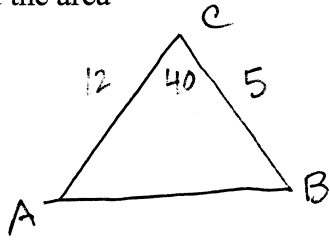
$\frac{1}{2} (32 \cdot 75) \sin 58^\circ = A$

$\frac{1}{2} (2400) \sin 58^\circ = A$

$1200 \sin 58^\circ = A$

$1017.660^2$

- (b) In  $\triangle ABC$ ,  $a=5$ ,  $b=12$ , and  $\angle C = 40^\circ$ .  
Find the area



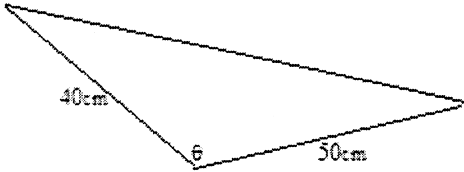
$$A = \frac{1}{2} (12 \cdot 5) (\sin 40)$$

$$A = \frac{1}{2} (60) (\sin 40)$$

$$A = 30 (\sin 40)$$

$$\underline{19.28 \text{ u}^2}$$

4. The triangle below has area  $829\text{cm}^2$ . Find all possible values of  $\theta$ .



$$\underline{56^\circ, 124^\circ}$$

$$\frac{1}{2} (40 \cdot 50) \sin \theta = 829$$

$$1000 \sin \theta = 829$$

$$\sin \theta = \frac{829}{1000}$$

$$\sin \theta = .829$$

$$\sin^{-1} (.829) = 56^\circ$$