Math 3 Name: KEY

Unit 1.5 Trigonometric Functions of Non-Acute Angles PRACTICE

1)

θ	$\sin\theta$	$\cos\theta$	$\tan\theta$	$\csc\theta$	$\sec\theta$	$\cot\theta$
$30°$	$\frac{1}{2}$	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{3}}{3}$	2	$\frac{2\sqrt{3}}{2}$	$\sqrt{3}$
$45°$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	1	$\sqrt{2}$	$\sqrt{2}$	1
$60°$	$\frac{\sqrt{3}}{2}$	$\frac{1}{2}$	$\sqrt{3}$	$\frac{2\sqrt{3}}{3}$	2	$\frac{\sqrt{3}}{3}$
$120°$	$\frac{\sqrt{3}}{2}$	$-\frac{1}{2}$	$-\sqrt{3}$	$\frac{2\sqrt{3}}{3}$	-2	$-\frac{\sqrt{3}}{3}$
$135°$	$\frac{\sqrt{2}}{2}$	$-\frac{\sqrt{2}}{2}$	-1	$\sqrt{2}$	$-\sqrt{2}$	-1
$150°$	$\frac{1}{2}$	$-\frac{\sqrt{3}}{2}$	$-\frac{\sqrt{3}}{3}$	2	$-\frac{2\sqrt{3}}{3}$	$-\sqrt{3}$
$210°$	$-\frac{1}{2}$	$-\frac{\sqrt{3}}{2}$	$\frac{\sqrt{3}}{3}$	-2	$-\frac{2\sqrt{3}}{3}$	$\sqrt{3}$
$225°$	$-\frac{\sqrt{2}}{2}$	$-\frac{\sqrt{2}}{2}$	1	$-\sqrt{2}$	$-\sqrt{2}$	1
$240°$	$-\frac{\sqrt{3}}{2}$	$-\frac{1}{2}$	$\sqrt{3}$	$-\frac{2\sqrt{3}}{3}$	-2	$\frac{\sqrt{3}}{3}$
$300°$	$-\frac{\sqrt{3}}{2}$	$\frac{1}{2}$	$-\sqrt{3}$	$-\frac{2\sqrt{3}}{3}$	2	$-\frac{\sqrt{3}}{3}$
$315°$	$-\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	-1	$-\sqrt{2}$	$\sqrt{2}$	-1
$330°$	$-\frac{1}{2}$	$\frac{\sqrt{3}}{2}$	$-\frac{\sqrt{3}}{3}$	-2	$\frac{2\sqrt{3}}{2}$	$-\sqrt{3}$

Match each angle in Column I, with its reference angle in Column II.

Column I

2) $98°$ C

3) $212°$ F

4) $-135°$ A

5) $-60°$ B

6) $750°$ D

7) $480°$ B

Column II

A. $45°$

B. $60°$

C. $82°$

D. $30°$

E. $38°$

F. $32°$

Suppose θ is in the interval $(90°, 180°)$. Find the sign of each of the following.

8) $\sin\frac{\theta}{2}$ positive

9) $\cos\frac{\theta}{2}$ positive

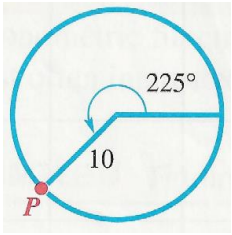
10) $\cot(\theta + 180°)$ negative

11) $\sec(\theta + 180°)$ positive

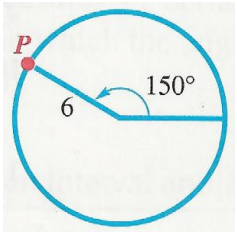
12) $\cos(-\theta)$ negative

13) $\sin(-\theta)$ negative

Find the coordinates of the point P on the circumference of each circle.
(Hint: Add x- and y-axes, assuming that the angle is in standard position.)

14) 

$(-5\sqrt{2}, -5\sqrt{2})$

15) 

$(-3\sqrt{3}, 3)$

Find exact values of the six trigonometric functions for each angle. Rationalize denominators when applicable.

16) $300°$	sin B = $-\frac{\sqrt{3}}{2}$	cos B = $\frac{1}{2}$	tan B = $-\sqrt{3}$	csc B = $-\frac{2\sqrt{3}}{3}$	sec B = 2	cot B = $-\frac{\sqrt{3}}{3}$
17) $315°$	sin B = $-\frac{\sqrt{2}}{2}$	cos B = $\frac{\sqrt{2}}{2}$	tan B = -1	csc B = $-\sqrt{2}$	sec B = $\sqrt{2}$	cot B = -1
18) $405°$	sin B = $\frac{\sqrt{2}}{2}$	cos B = $\frac{\sqrt{2}}{2}$	tan B = 1	csc B = $\sqrt{2}$	sec B = $\sqrt{2}$	cot B = 1
19) $-300°$	sin B = $\frac{\sqrt{3}}{2}$	cos B = $\frac{1}{2}$	tan B = $\sqrt{3}$	csc B = $\frac{2\sqrt{3}}{2}$	sec B = 2	cot B = $\frac{\sqrt{3}}{3}$
20) $420°$	sin B = $\frac{\sqrt{3}}{2}$	cos B = $\frac{1}{2}$	tan B = $\sqrt{3}$	csc B = $\frac{2\sqrt{3}}{3}$	sec B = 2	cot B = $\frac{\sqrt{3}}{3}$
21) $480°$	sin B = $\frac{\sqrt{3}}{2}$	cos B = $-\frac{1}{2}$	tan B = $-\sqrt{3}$	csc B = $\frac{2\sqrt{3}}{3}$	sec B = -2	cot B = $-\frac{\sqrt{3}}{3}$
22) $495°$	sin B = $\frac{\sqrt{2}}{2}$	cos B = $-\frac{\sqrt{2}}{2}$	tan B = -1	csc B = $\sqrt{2}$	sec B = $-\sqrt{2}$	cot B = -1
23) $570°$	sin B = $-\frac{1}{2}$	cos B = $-\frac{\sqrt{3}}{2}$	tan B = $\frac{\sqrt{3}}{3}$	csc B = -2	sec B = $-\frac{2\sqrt{3}}{3}$	cot B = $\sqrt{3}$
24) $750°$	sin B = $\frac{1}{2}$	cos B = $\frac{\sqrt{3}}{2}$	tan B = $\frac{\sqrt{3}}{3}$	csc B = 2	sec B = $\frac{2\sqrt{3}}{3}$	cot B = $\sqrt{3}$
25) $1305°$	sin B = $-\frac{\sqrt{2}}{2}$	cos B = $-\frac{\sqrt{2}}{2}$	tan B = 1	csc B = $-\sqrt{2}$	sec B = $-\sqrt{2}$	cot B = 1
26) $1500°$	sin B = $\frac{\sqrt{3}}{2}$	cos B = $\frac{1}{2}$	tan B = $\sqrt{3}$	csc B = $\frac{2\sqrt{3}}{3}$	sec B = 2	cot B = $\frac{\sqrt{3}}{3}$
27) $2670°$	sin B = $\frac{1}{2}$	cos B = $-\frac{\sqrt{3}}{2}$	tan B = $-\frac{\sqrt{3}}{3}$	csc B = 2	sec B = $-\frac{2\sqrt{3}}{3}$	cot B = $-\sqrt{3}$
28) $-390°$	sin B = $-\frac{1}{2}$	cos B = $\frac{\sqrt{3}}{2}$	tan B = $-\frac{\sqrt{3}}{3}$	csc B = -2	sec B = $\frac{2\sqrt{3}}{3}$	cot B = $-\sqrt{3}$
29) $-510°$	sin B = $-\frac{1}{2}$	cos B = $-\frac{\sqrt{3}}{2}$	tan B = $\frac{\sqrt{3}}{3}$	csc B = -2	sec B = $-\frac{2\sqrt{3}}{3}$	cot B = $\sqrt{3}$
30) $-1020°$	sin B = $\frac{\sqrt{3}}{2}$	cos B = $\frac{1}{2}$	tan B = $\sqrt{3}$	csc B = $\frac{2\sqrt{3}}{3}$	sec B = 2	cot B = $\frac{\sqrt{3}}{3}$
31) $-1290°$	sin B = $\frac{1}{2}$	cos B = $-\frac{\sqrt{3}}{2}$	tan B = $-\frac{\sqrt{3}}{3}$	csc B = 2	sec B = $-\frac{2\sqrt{3}}{3}$	cot B = $-\sqrt{3}$