

REVIEW GRAPHING TRIGONOMETRIC FUNCTIONS

Graph:

1. $y = 9 \cot\left(6\theta - \frac{\pi}{4}\right) + 6$

2. $y = -3 \tan\left(6\theta - \frac{5\pi}{12}\right) - 7$

3. $y = -2 \tan\left(\frac{1}{3}\theta + \frac{\pi}{2}\right) + 1$

4. $y = -3 \csc\left(3\theta + \frac{\pi}{3}\right) - 5$

5. $y = 5 \cos\theta + 5$

6. $y = 4 \sec\left(\theta - \frac{\pi}{3}\right)$

7. $y = -2 \sin\left(\frac{1}{3}\theta - \frac{\pi}{4}\right)$

8. $y = 3 \cos(2\theta - \pi) + 2$

9. $y = \csc\left(2\theta - \frac{2\pi}{3}\right)$

10. $y = -5 \sec 3\theta + 4$

11. What are the domain restrictions for tangent graphs?

11. $\left(-\frac{\pi}{2}, \frac{\pi}{2}\right)$

12. What are the domain restrictions for cotangent graphs?

12. $(0, \pi)$

13. What do the asymptotes on the graph represent?

13. undefined values

14. Which of these graphs have a period of 10π ?

Calculate B: $\frac{2\pi}{B} = \frac{10\pi}{1}$

A. $y = 7 \cos \frac{x}{5}$

B. $y = 7 \cos 5x$

C. $y = 7 \cos \frac{x}{10}$

D. $y = 7 \cos 10x$

$\frac{2\pi}{10\pi} = \frac{10\pi B}{10\pi}$

$\frac{1}{5} = B$

15. What is the amplitude and period of the graph $y = -5 \sin \frac{x}{7}$?

amp. = 5 period: $\frac{2\pi}{(1/7)} \rightarrow 14\pi$

16. If you are given a graph how would you find the amplitude?

measure distance from each

17. How do you find the max and min values for $y = P \cos(M\theta + E) + R$?max/min to
midline

MAX: $R + |P|$
MIN: $R - |P|$

↑ amplitude
 $|P|$ ↑
midline

$$1. y = 9 \cot\left(6\theta - \frac{\pi}{4}\right) + 6$$

MIDLINE:

period : $\frac{\pi}{6}$

$$y = 6$$

intervals : $\frac{\pi}{24}$

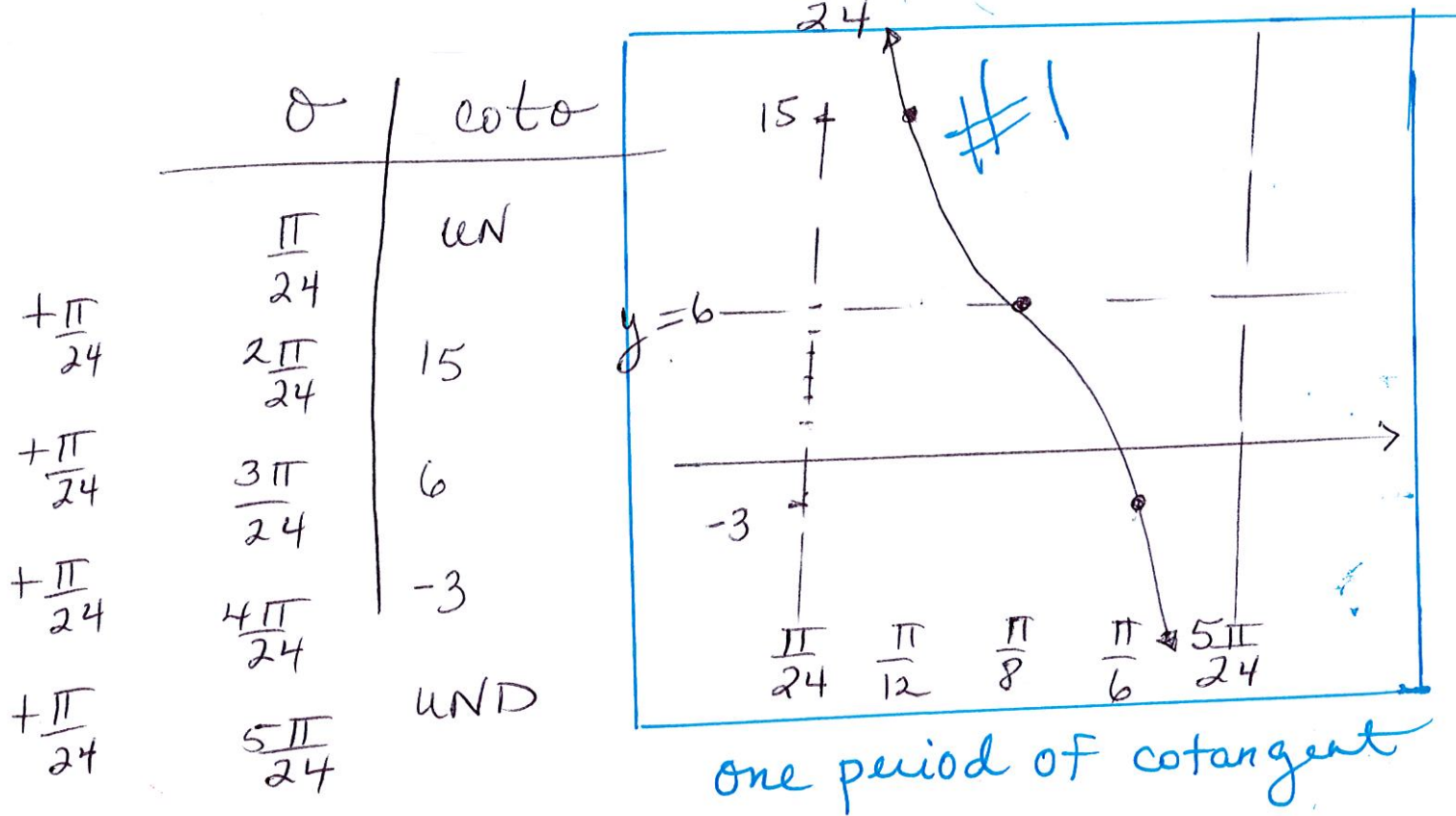
MAX : $6 + 9 = 15$

MIN : $6 - 9 = -3$

Phase shift : $6\theta - \frac{\pi}{4} = 0$

$$6\theta = \frac{\pi}{4}$$

$$\theta = \frac{\pi}{24}$$



$$2. \quad y = -3 \tan\left(6\theta - \frac{5\pi}{12}\right) - 7$$

period: $\frac{\pi}{6}$

intervals: $\frac{\pi}{24}$

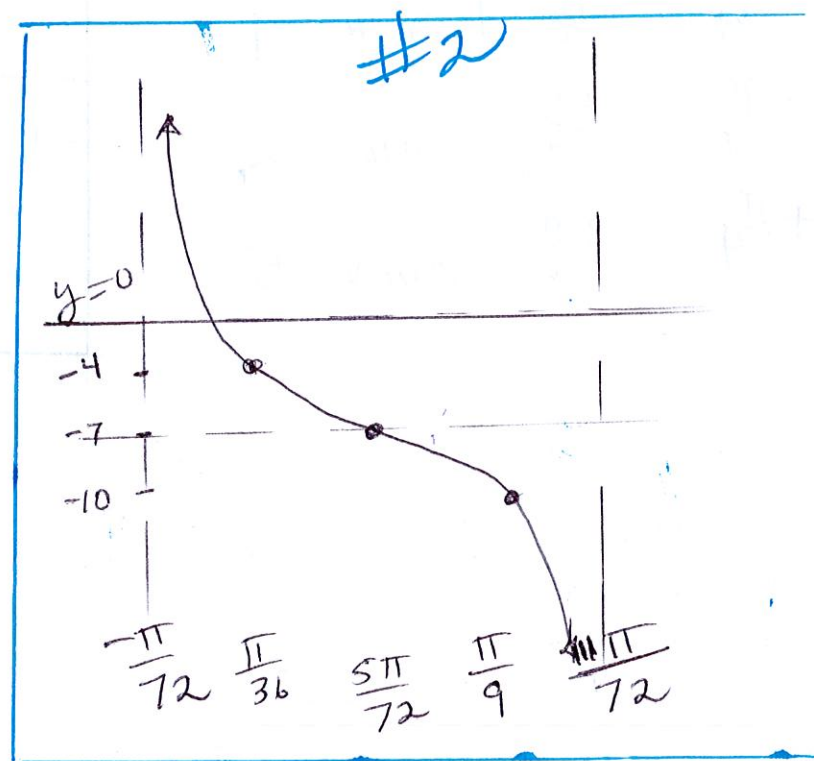
Phase shift: $6\theta - \frac{5\pi}{12} = -\frac{\pi}{2}$

$$6\theta = -\frac{\pi}{12}$$

$$\theta = -\frac{\pi}{72}$$

#1

θ	θ	-tan θ
	$-\frac{\pi}{72}$	UND
$+\frac{\pi}{24}$	$\frac{\pi}{36}$	-4
$+\frac{\pi}{24}$	$\frac{5\pi}{72}$	-7
$+\frac{\pi}{24}$	$\frac{\pi}{9}$	-10
$+\frac{\pi}{24}$	$\frac{11\pi}{72}$	UND



1 period of $-\tan \theta$

Check: $\frac{11\pi}{72} - \frac{-\pi}{72}$
 $\frac{12\pi}{72}$
 $\frac{\pi}{6}$ ✓

8. $y = 3 \cos(2\theta - \pi) + 2$

period : $\frac{2\pi}{2} = \pi$

intervals : $\frac{\pi}{4}$

phase shift : $2\theta - \pi = 0$

$2\theta = \pi$

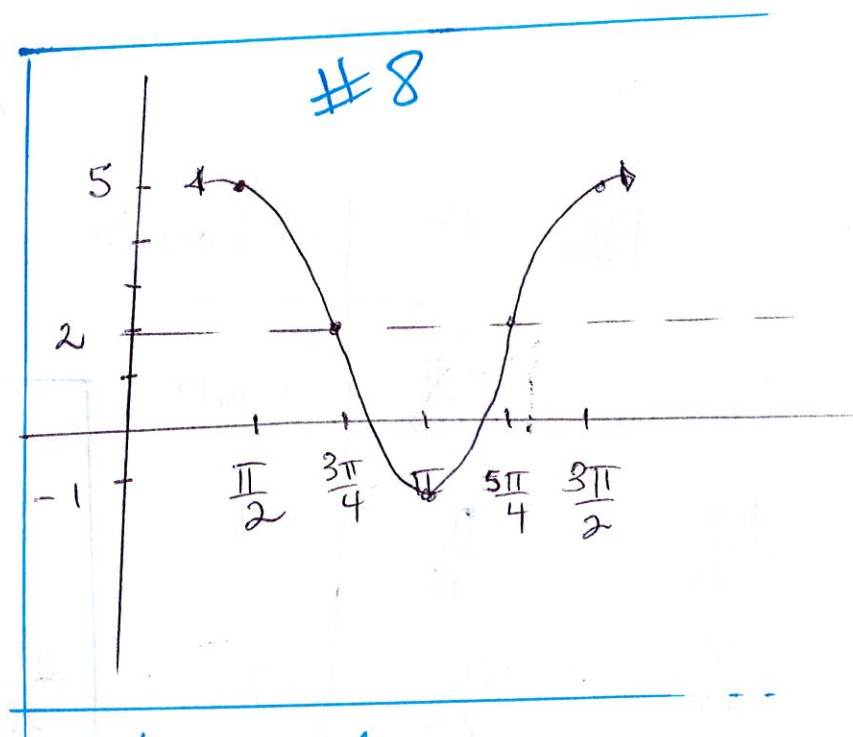
$\theta = \frac{\pi}{2}$

MIDLINE: $y = 2$

MAX = 5

MIN = -1

θ	$\cos \theta$
$\frac{\pi}{2}$	MAX 5
$\frac{3\pi}{4}$	MID 2
$\frac{4\pi}{4}$	MIN -1
$\frac{5\pi}{4}$	MID 2
$\frac{6\pi}{4}$	MAX 5



period of $\cos \theta$

not to be used

$$3. y = -2 \tan\left(\frac{1}{3}\theta + \frac{\pi}{2}\right) + 1$$

$$\text{period: } \frac{\pi}{\frac{1}{3}} \rightarrow 3\pi$$

$$\text{intervals: } \frac{3\pi}{4}$$

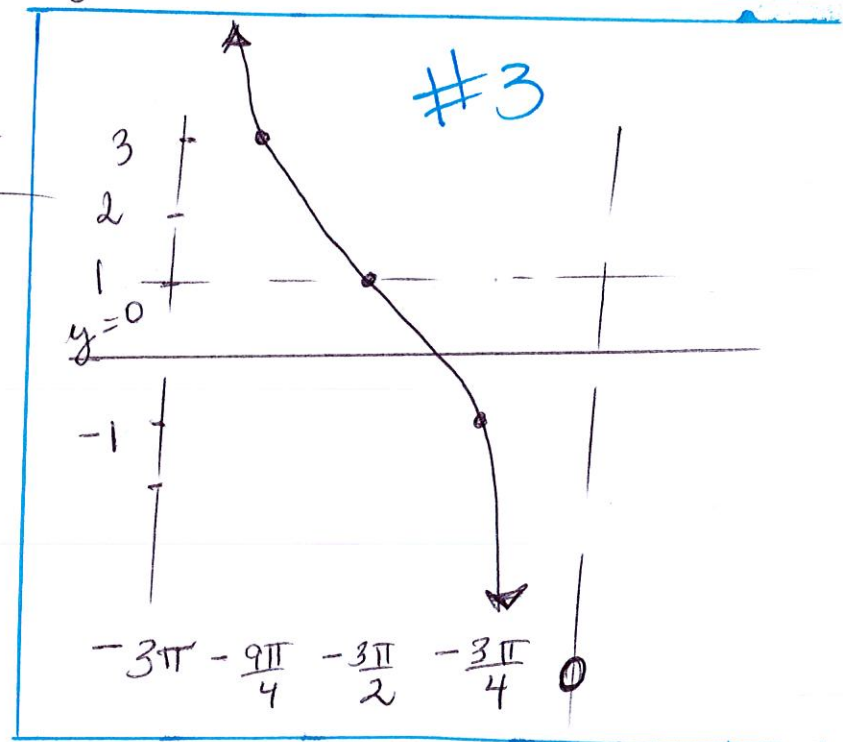
$$\text{phase shift: } \frac{1}{3}\theta + \frac{\pi}{2} = -\frac{\pi}{2}$$

$$\frac{1}{3}\theta = -\frac{2\pi}{2}$$

$$\theta = -\frac{6\pi}{2}$$

$$\theta = -3\pi$$

θ	$-\tan\theta$
-3π	UND
$+\frac{3\pi}{4}$	$-\frac{9\pi}{4}$ 3
$+\frac{3\pi}{4}$	$-\frac{6\pi}{4}$ 1
$+\frac{3\pi}{4}$	$-\frac{3\pi}{4}$ -1
$+\frac{3\pi}{4}$	0 UND



1 period of $-\tan\theta$

4. $y = -3\csc\left(3\theta + \frac{\pi}{3}\right) - 5$

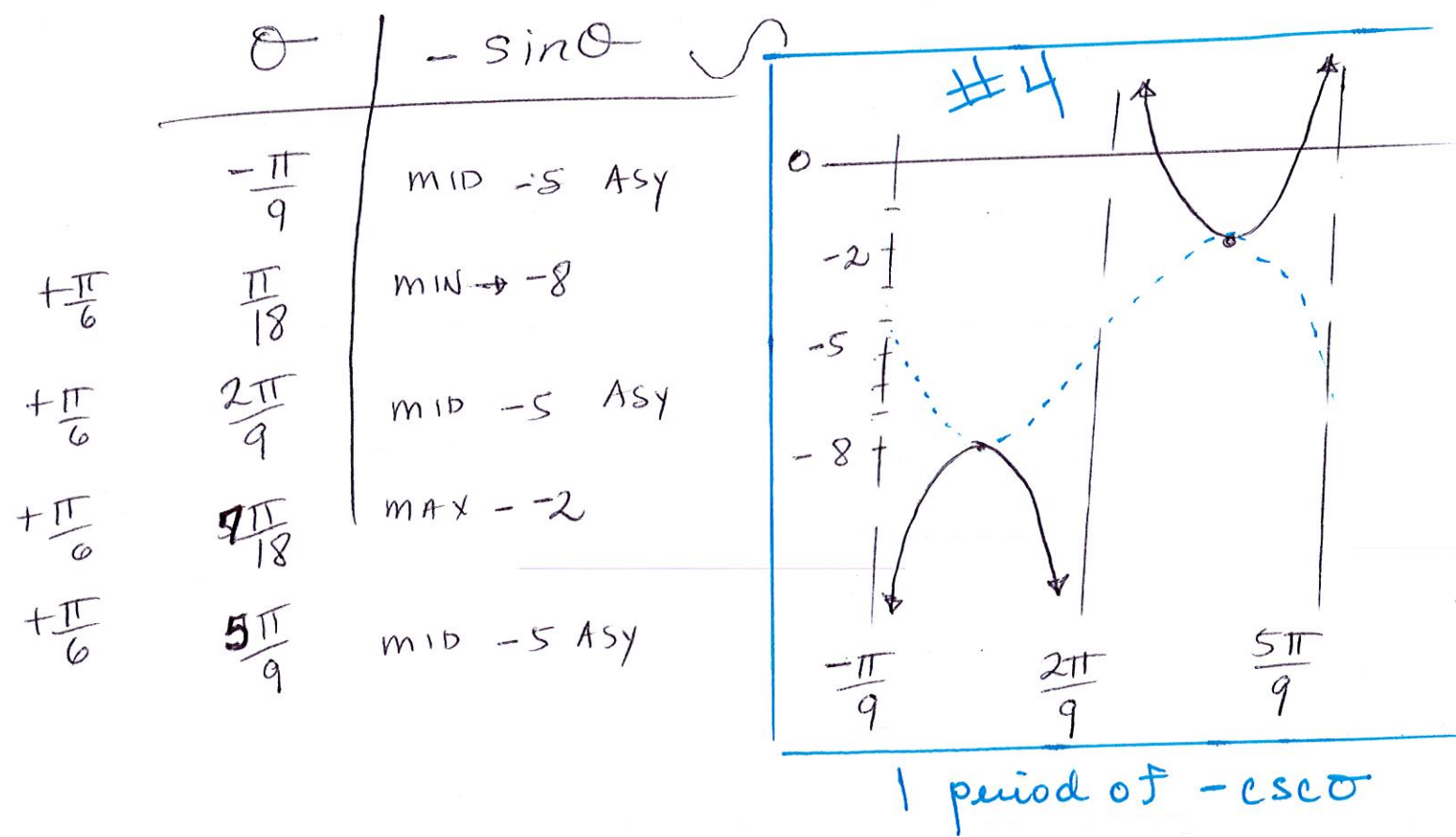
period: $\frac{2\pi}{3}$

intervals: $\frac{2\pi}{3 \cdot 4} = \frac{2\pi}{12} = \frac{\pi}{6}$

phase shift: $3\theta + \frac{\pi}{3} = 0$

$3\theta = -\frac{\pi}{3}$

$\theta = -\frac{\pi}{9}$





5. $y = 5 \cos \theta + 5$

MIDLINE: $y = 5$

period: 2π

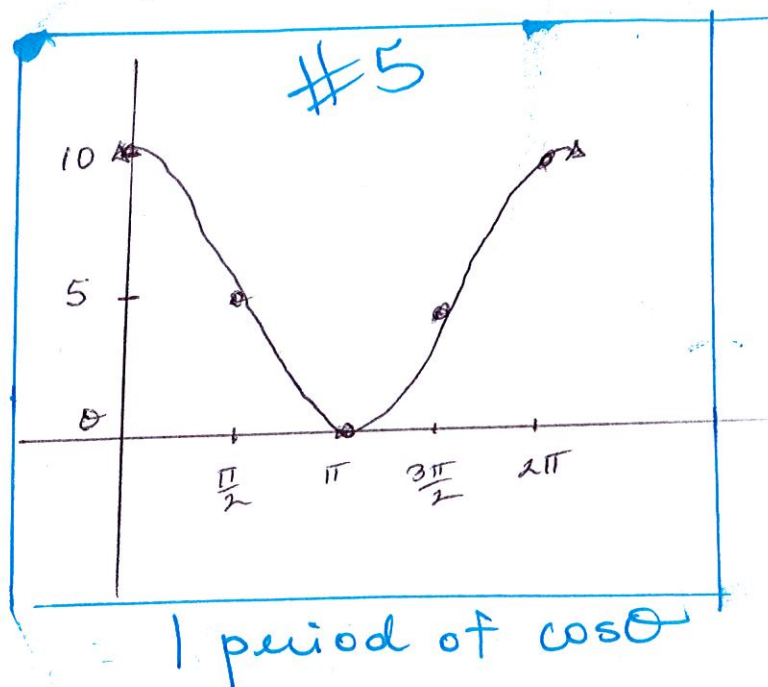
MAX: $5 + 5 = 10$

intervals: $\frac{2\pi}{4} = \frac{\pi}{2}$

MIN: $5 - 5 = 0$

Phase shift: NA

θ	$\cos \theta$
0	10
$\frac{\pi}{2}$	5
π	0
$\frac{3\pi}{2}$	5
2π	10



6. $y = 4 \sec(\theta - \frac{\pi}{3})$

MIDLINE: $y = 0$

period: 2π

MAX: 4

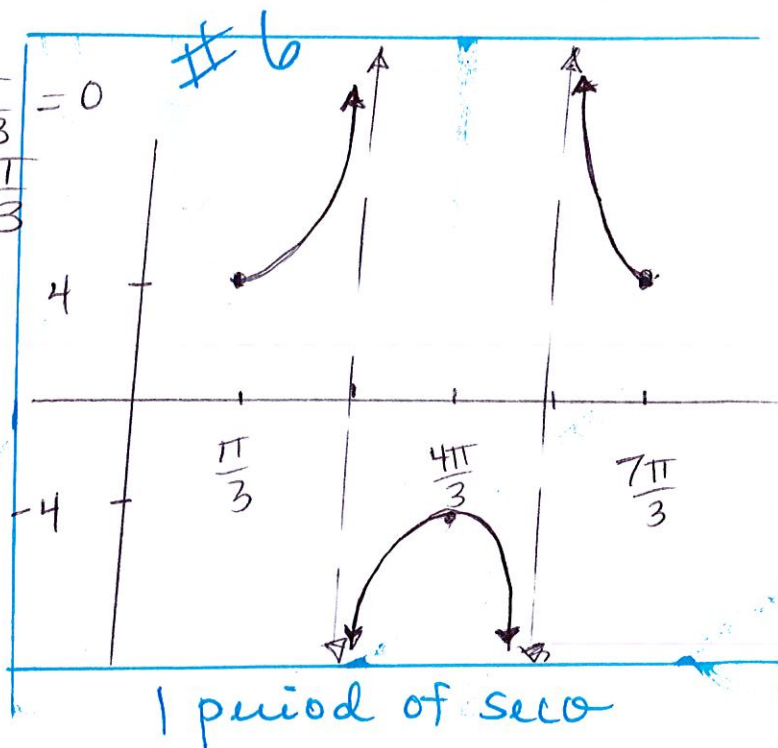
intervals: $\frac{\pi}{2}$

MIN: -4

Phase shift: $\theta = \frac{\pi}{3} = 0$

$\theta = \frac{\pi}{3}$

θ	$\sec \theta$
$\frac{\pi}{3}$	MAX 4
$\frac{5\pi}{6}$	MID \rightarrow ASY
$\frac{8\pi}{6}$	MIN -4
$\frac{11\pi}{6}$	MID ASY
$\frac{14\pi}{6}$	MAX 4



$+\frac{\pi}{2}$
 $+\frac{\pi}{2}$
 $+\frac{\pi}{2}$
 $+\frac{\pi}{2}$

7. $y = -2 \sin\left(\frac{1}{3}\theta - \frac{\pi}{4}\right)$

period: $\frac{2\pi}{\frac{1}{3}} \rightarrow 6\pi$

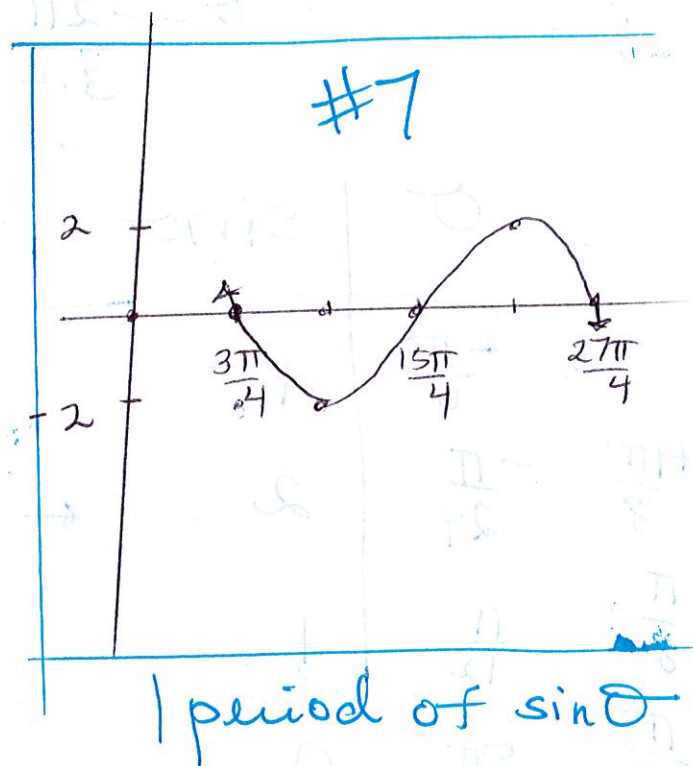
intervals: $\frac{6\pi}{4} = \frac{3\pi}{2}$

phase shift: $\frac{1}{3}\theta - \frac{\pi}{4} = 0$

$\frac{1}{3}\theta = \frac{\pi}{4}$

$\theta = \frac{3\pi}{4}$

θ	$-\sin\theta$
$\frac{3\pi}{4}$	MID 0
$+\frac{3\pi}{2}$ $\frac{9\pi}{4}$	MIN -2
$+\frac{3\pi}{2}$ $\frac{15\pi}{4}$	MID 0
$+\frac{3\pi}{2}$ $\frac{21\pi}{4}$	MAX 2
$+\frac{3\pi}{2}$ $\frac{27\pi}{4}$	MID 0



2. $y = \sin\left(4\theta + \frac{2\pi}{3}\right) + 1$

period: $\frac{2\pi}{4} = \frac{\pi}{2}$

intervals: $\frac{\pi}{2 \cdot 4} = \frac{\pi}{8}$

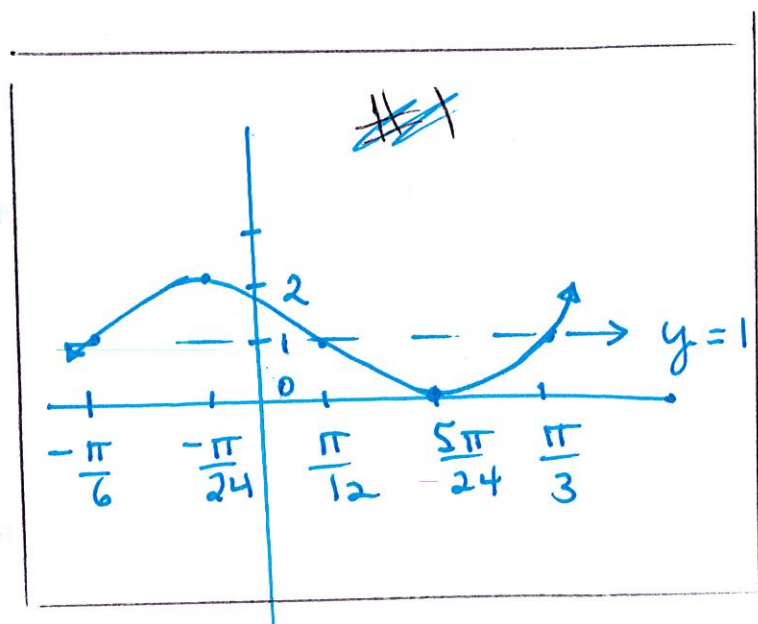
P.S. $4\theta + \frac{2\pi}{3} = 0$

$4\theta = -\frac{2\pi}{3}$

$\theta = \frac{-2\pi}{3 \cdot 4} = \frac{-2\pi}{12} = \frac{-\pi}{6}$

Not from
test review;
Sorry, this
was from
quiz!

θ	$\sin\theta$
$-\frac{\pi}{6}$	1
$-\frac{\pi}{24}$	2
$\frac{\pi}{12}$	1
$\frac{5\pi}{24}$	0
$\frac{\pi}{3}$	1



1 period of $\sin\theta$

Check: $\frac{1\pi}{3} - \left(-\frac{1\pi}{6}\right)$
 $= \frac{\pi}{2}$ (the period)

$+\frac{1\pi}{8}$
 $+\frac{\pi}{8}$
 $+\frac{\pi}{8}$
 $+\frac{\pi}{8}$

9. $y = \csc(2\theta - \frac{2\pi}{3})$

MIDLINE: $y=0$

period: $\frac{2\pi}{2} = \pi$

MAX = $0+1=1$

MIN = $0-1=-1$

intervals: $\frac{\pi}{4}$

phase shift: $2\theta - \frac{2\pi}{3} = 0$

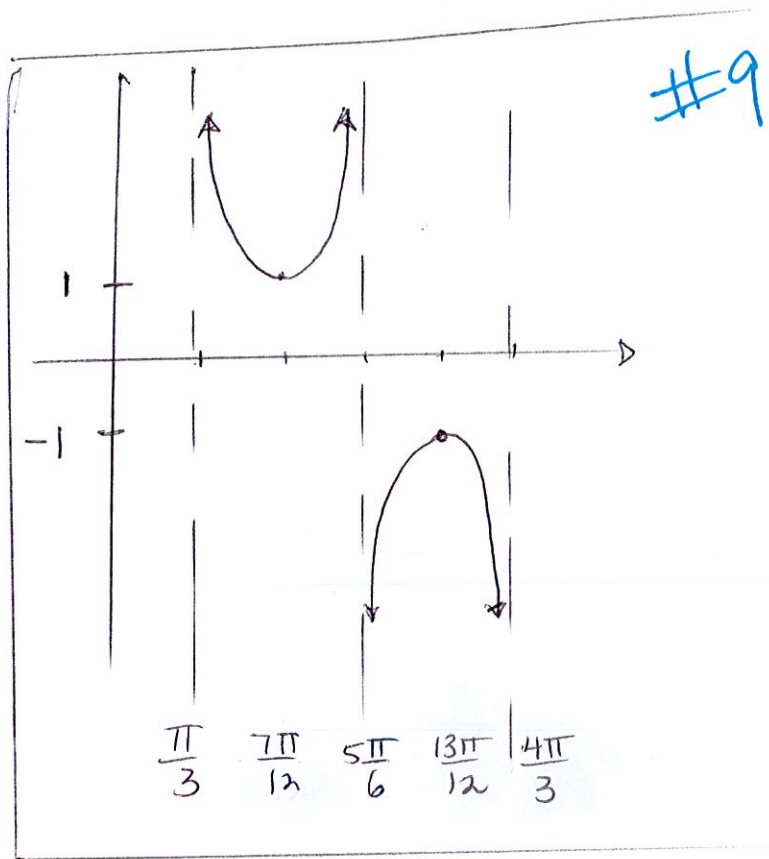
$2\theta = \frac{2\pi}{3}$

$\theta = \frac{2\pi}{3 \cdot 2}$

$\theta = \frac{2\pi}{6} = \frac{\pi}{3}$

0/1#

θ	$\sin \theta$
$\frac{\pi}{3}$	MID
$\frac{7\pi}{12}$	MAX
$\frac{10\pi}{12}$	MID
$\frac{13\pi}{12}$	MIN
$\frac{16\pi}{12}$	MID



#9

1 period of csc

$+\frac{\pi}{4}$
 $+\frac{\pi}{4}$
 $+\frac{\pi}{4}$
 $+\frac{\pi}{4}$

10. $y = -5 \sec 3\theta + 4$

period: $\frac{2\pi}{3}$

intervals: $\frac{2\pi}{3 \cdot 4} = \frac{2\pi}{12} = \frac{\pi}{6}$

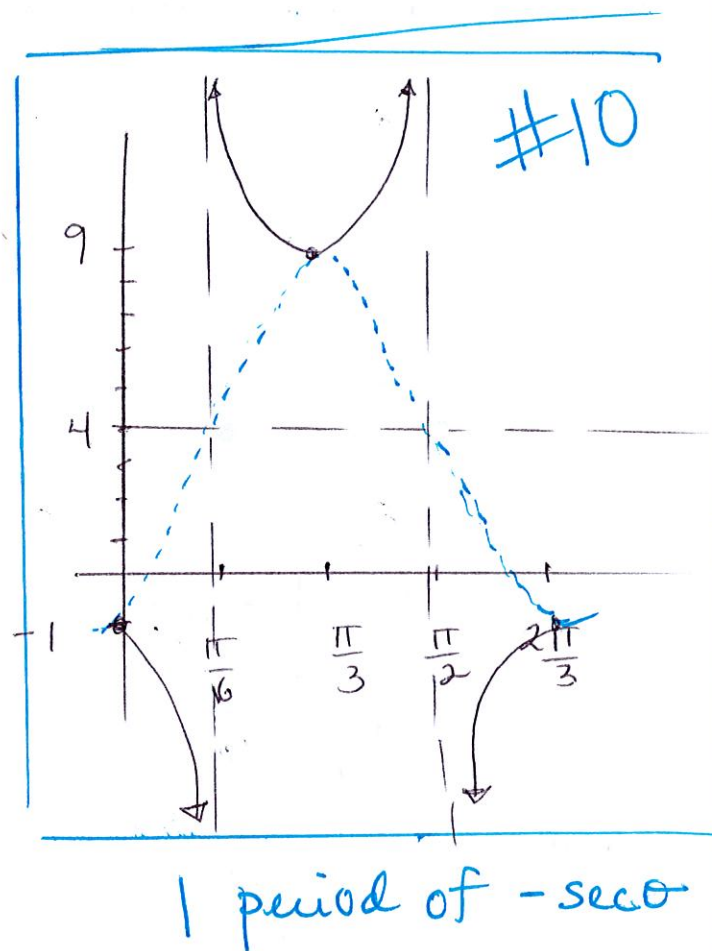
Phase shift: NA

MIDLINE: $y = 4$

MAX: $4 + 5 = 9$

MIN: $4 - 5 = -1$

θ	$-\cos\theta$
0	MIN -1
$\frac{\pi}{6}$	MID ASY
$\frac{2\pi}{6}$	MAX 9
$\frac{3\pi}{6}$	MID ASY
$\frac{4\pi}{6}$	MIN -1



P.H.

period of sec