

Trig.

Semester 1 Exam Review Packet

Name _____

This is a sample of the material that you will need to know for the Semester Exam.

*Each problem must be completed with work shown to receive full credit for the review!

This is due on the day of your exam

1. Name an angle that is coterminal with 100°

- a. Positive coterminal
- b. A negative coterminal

1a _____
1b _____

2. What is the smallest positive angle coterminal with 900° ?

2 _____

3. What is the smallest possible angle $0 \leq \theta \leq 360$ that is coterminal
With 760° ?

3. _____

4. Find $\cos\theta$ if θ is in quad 4, and $\cos 2\theta = \frac{-7}{11}$

*4. _____

5. Find $\sin 2x$ if $\tan x = \frac{-5}{12}$ and $\sin x \leq 0$

*5. _____

6. A. Find $\sin(A + B)$, given $\sin A = \frac{-3}{5}$ and $\cos B = \frac{2\sqrt{2}}{9}$

*6a _____

A and B are in quadrant 4.

- b. Find $\cos(A - B)$

6b _____

- c. Find $\sin 2A$ and $\cos 2B$

6c _____

Chapter 1: Triangles and Vectors

⑬ Given an oblique triangle, ⑬ _____
and $B = 40^\circ 20'$

$$a = 15 \text{ ft}$$

$$C = 95^\circ 15'$$

* Find b

⑭ Given $A = 65^\circ 18'$ ⑭ _____

$$b = 40 \text{ cm}$$

$$c = 30 \text{ cm}$$

* Find the area

⑮ $a = 15 \text{ ft}$

$$b = 20 \text{ ft}$$

* $c = 30 \text{ ft}$

a) Find the area

⑯

a) _____

b) Find $\angle C$

b) _____

⑰ Find a in problem #14

⑰ _____

*

⑱ $C = 38^\circ 50'$, $a = 8 \text{ m}$, $c = 6 \text{ m}$ ⑱ _____

* Find $\angle A$

18) Express $34^\circ 15' 45''$ in 18

decimal degrees

19) Express 78.265° in 19

DMS, rounded to the
nearest second.

20) Identify the quadrant 20

if $\sin x < 0$ and
 $\tan x > 0$

21) Identify the quadrant 21

if $\csc x > 0$ and $\sec x < 0$

22) Decide whether possible or 22

impossible:

a) $\sin x = .8667$ a)

b) $\cos x = -1.9872$ b)

c) $\csc x = -2.1893$ c)

d) $\tan x = 5.7781$ d)

23) Find $\cos \theta$ if $\tan \theta = \frac{3}{4}$ 23

* and $\sin \theta < 0$

24) If θ is in standard position 24

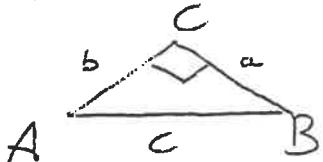
* and its terminal side contains
 $(-5, 12)$, find $\cos \theta$

②5) Find $\sin\theta$, if $\cos\theta = \frac{3}{8}$ and

* $\sin\theta < 0$

(25)

Chapter 2: Acute Angles and Right Triangles



②6) Give the $\sec A$ as a ratio of variables

②7) Give the exact value for the $\cos 240^\circ$

②8) Write in terms of the cofunction: $\sin 37^\circ$

②9) Write in terms of the cofunction: $\tan 40^\circ 20'$

③0) Solve the equation for θ :

$$*\sin(4\theta+18) = \cos(16\theta-8)$$

③1) Evaluate. Give your answer

* in simplest form:

$$\cos^2 90^\circ - \sec^2 180^\circ + \csc^2 135^\circ$$

③2) True or False: $\sin 80^\circ > \sin 20^\circ$

③3) True or False $\cos 37^\circ > \sin 37^\circ$

- 34) Find all the values of the angle θ (34) _____
 where $0^\circ \leq \theta < 360^\circ$ if $\sec \theta = -2$
- 35) Use a calculator to find (35) _____
 $\csc 34^\circ$. Round to 4 places.
- 36) Use a calculator to find (36) _____
 $\tan 58^\circ 42'$. Round to 4 places.
- 37) Find θ to the nearest ten (37) _____
 minutes if $\cos \theta = .85871$
 and θ is in quadrant IV
- 38) Find θ to the nearest ten (38) _____
 minutes if $\csc \theta = 2.325$
 and θ is in quadrant II
- 39) In Right Triangle ABC, (39) $a =$ _____
 where $\angle C = 90^\circ$, and $\angle A = 54^\circ$
 * and $b = 59\text{cm}$, find a and $c =$ _____
 c .
- 40) In Right Triangle ABC, (40) $A =$ _____
 * where $a = 60\text{ ft}$ and $b = 38\text{ ft}$
 and $C = 90^\circ$, find A and B and c.
 $B =$ _____
 $c =$ _____
- 41) The angle of elevation to
 the top of a flagpole is 22° (41) _____
 from a point 328 ft from
 the base of the flagpole.
 Find the height of the flagpole.

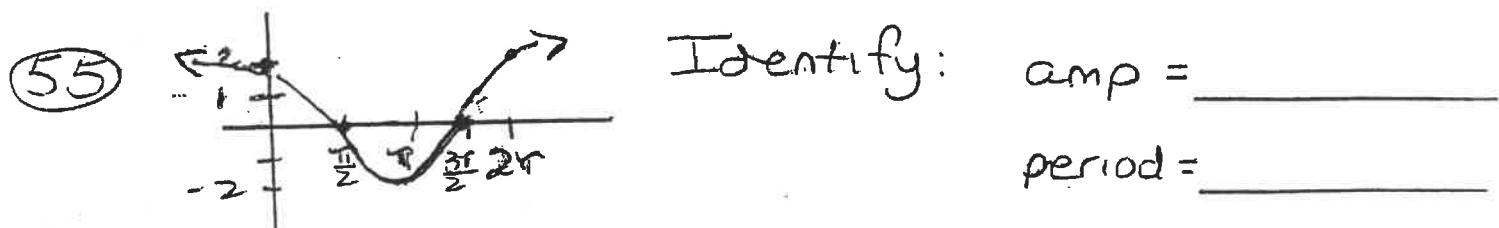
Chapter 3 Radian Measure and Circular Functions

- 42 Convert to radians. Leave as a multiple of π : 300° 42 _____
- 43 Convert $\frac{5\pi}{12}$ to degrees. 43 _____
- 44 Convert to degrees using a calculator: 3.06 radians
Round to the nearest tenth. 44 _____
- 45 Convert to radians using a calculator. Round to the nearest tenth: $122^\circ 37'$ 45 _____
- 46 Give the exact value for $\cos \frac{4\pi}{3}$ 46 _____
- 47 Find the arc length if $r = 12$ in and $\theta = \frac{4\pi}{6}$ radians 47 _____
- 48 Find the arc length if $r = 70$ cm and $\theta = 120^\circ$ 48 _____
- 49 Find the area of a sector if $r = 20$ mm and $\theta = \frac{4\pi}{5}$ radians 49 _____
- 50 Find the area of a sector if $r = 15$ in and $\theta = 130^\circ$ 50 _____
- 51 Use a calculator to find $\tan(1.3032 \text{ radians})$ 51 _____
- 52 Find a value for Δ when $\cos \Delta = .4429$ 52 _____

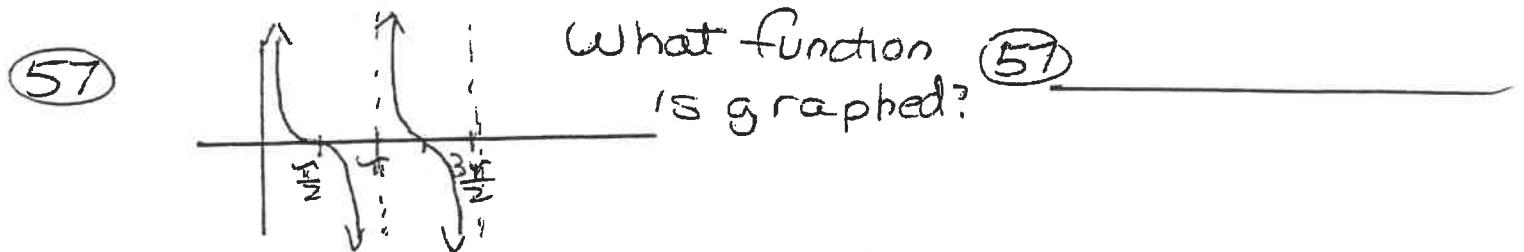
- 23) Use the formula $v = r \cdot w$ to (53)
 find the linear velocity of a
 point on the edge of a flywheel
 of radius 10m if it is
 rotating 100 times per second

Chapter 4

- 54) If $y = 2 \sin \frac{1}{3}x$, (54) amp = _____
 identify the following: period = _____



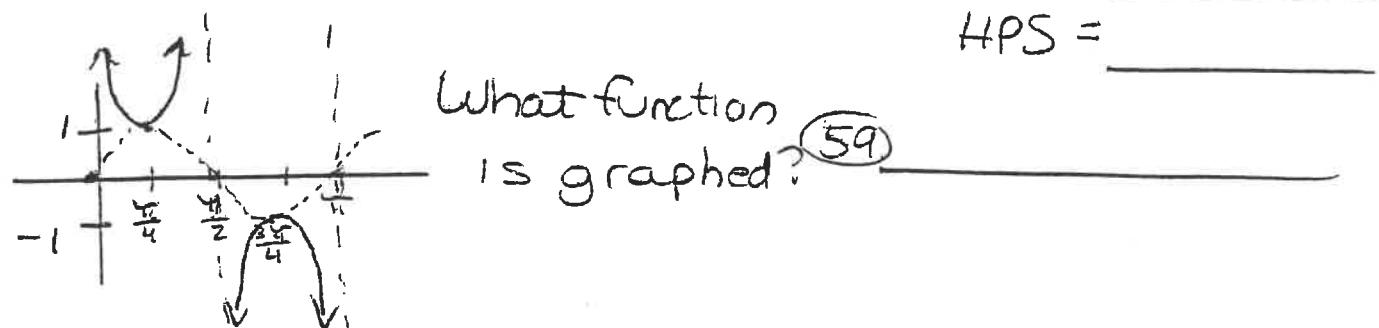
- 56) What function is graphed (56) _____
 in problem #55?



- 58) If $y = -2 \sec(2x - \frac{\pi}{2}) + 1$ (58) Amp = _____
 Identify: Period = _____

$$VT = _____$$

$$HPS = _____$$



⑥0 Simplify using sines and cosines:

$$\csc^2 \beta - \cot^2 \beta$$

⑥0 _____

⑥1 $\cot^2 x (1 + \tan^2 x)$

⑥1 _____



⑥2 Simplify: $\sec \beta (\cos \beta + \sin \beta)$ ⑥2 _____



⑥3 Verify: $1 - \sec \theta \cos \theta = \tan \theta \cot \theta - 1$



⑥3 _____

⑥4 Write as a function of θ : ⑥4 _____

$$\cos(\theta - 180^\circ)$$

⑥5 If $\sin x = \frac{3}{5}$ in quadrant II

and $\cos y = -\frac{5}{13}$ in quadrant III.



Find:

a) $\sin(x+y)$

⑥5 a) _____

b) $\cos(x+y)$

b) _____

c) $\tan(x+y)$

c) _____