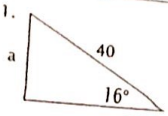
Math 3 Unit 7 Review

Name _____

All triangles are right triangles. Solve for the variables

1.

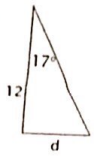


a= 11.0

$\sin 16 = \frac{a}{40}$

$40 \sin 16 = a$

2.

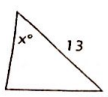


d = 3.7

$\tan 17 = \frac{d}{12}$

$12 \tan 17 = d$

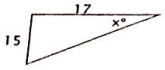
3.



x = 22.6°

$\sin^{-1}\left(\frac{5}{13}\right)$

4.



x = 41.4°

$\tan^{-1}\left(\frac{15}{17}\right)$

Find the following values using your Unit Circle.

9. $\sin 120°$ $\frac{\sqrt{3}}{2}$

10. $\cos \frac{5\pi}{3}$ $\frac{1}{2}$

11. $\tan 300°$ $-\sqrt{3}$

12. $\tan 2\pi$ 0

13. $\sin 270°$ -1

14. $\tan \frac{7\pi}{6}$ $\frac{\sqrt{3}}{3}$

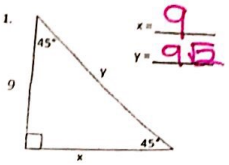
15. $\cos 150°$ $-\frac{\sqrt{3}}{2}$

16. $\tan 45°$ 1

17. $\sin \frac{\pi}{2}$ 1

Form A | Use the properties of special right triangles (30°-60°-90° and 45°-45°-90°) to solve problems

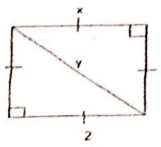
1.



x = 9

y = $9\sqrt{2}$

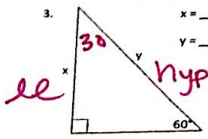
2.



x = 2

y = $2\sqrt{2}$

3.



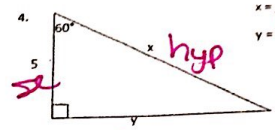
x = $10\sqrt{3}$

y = 20

le

se

4.



x = 10

y = $5\sqrt{3}$

se

le

5. Name two angles that are coterminal to 120°.

$120 + 360 = 480°$

$120 - 360 = -240°$

7. What is the exact value of $\sin 45°$?

$\frac{\sqrt{2}}{2}$

6. Name two angles that are coterminal to $\frac{2\pi}{7}$?

$\frac{2\pi}{7} + 2\pi = \frac{16\pi}{7}$

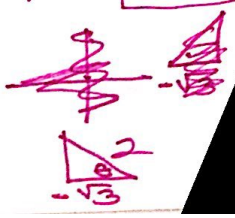
$\frac{2\pi}{7} - 2\pi = \frac{-12\pi}{7}$

8. Which angles have a cosine of $-\frac{\sqrt{3}}{2}$?

S	A
T	C

210°

150°



Math 3

Trigonometry Review

Unit 7

Find the measure of an angle between 0° and 360° coterminal with each given angle.

1. −323° $-323+360 = 37°$

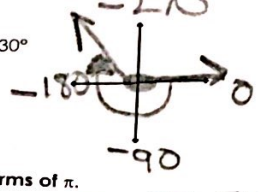
2. −4° $-4+360 = 356°$

3. 370° $370-360 = 10°$

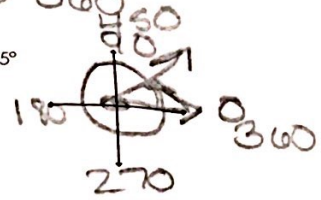
Sketch each angle in standard position.

4. 15°

5. −230°



6. 395°



Write each measure in radians. Express the answer in terms of π.

7. 315° $315 \cdot \frac{\pi}{180} = \frac{315\pi}{180} = \frac{7\pi}{4}$

8. −450° $-450 \cdot \frac{\pi}{180} = \frac{-450\pi}{180} = \frac{-5\pi}{2}$

9. 210° $210 \cdot \frac{\pi}{180} = \frac{7\pi}{6}$

Write each measure in degrees. If necessary, round your answer to the nearest degree.

10. $\frac{7\pi}{4} \cdot \frac{180}{\pi} = 315°$

11. $\frac{5\pi}{3} \cdot \frac{180}{\pi} = 300°$

12. $6\pi \cdot \frac{180}{\pi} = 1080°$

Find the exact values of $\cos\theta$, $\sin\theta$, and $\tan\theta$ for each angle measure.

13. −120° $\sin = -\frac{\sqrt{3}}{2}$, $\cos = -\frac{1}{2}$, $\tan = \sqrt{3}$

14. 135° $\sin \frac{\sqrt{2}}{2}$, $\cos = -\frac{\sqrt{2}}{2}$, $\tan = -1$

15. $-\frac{2\pi}{3}$ radians → 120° $\sin = -\frac{\sqrt{3}}{2}$, $\cos = -\frac{1}{2}$, $\tan = \sqrt{3}$

Write a cosine function for each description.

16. amplitude = $\frac{1}{4}$, period = 2, $a > 0$ $y = \frac{1}{4}\cos\pi(x)$

17. amplitude = 3, period = $\frac{\pi}{2}$ $a < 0$ $y = 3\cos 4x$

Write an equation for each translation.

18. $y = \cos x$, 4 units to the left $y = \cos(x+4)$

19. $y = \sin x$, $\frac{\pi}{4}$ units right, 2 units up $y = \sin(x-\frac{\pi}{4}) + 2$

Evaluate each expression. Write your answer in exact form. If the expression is undefined, write undefined.

20. sec (−30°) $\frac{2\sqrt{3}}{3}$

21. csc 270° -1

22. cot 210° $\sqrt{3}$

23. sec 90° undefined

24. State the period and asymptotes for $y = \tan(2x)$

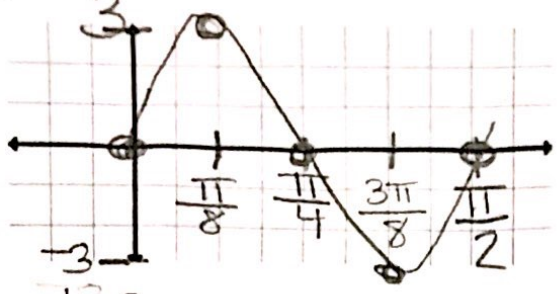
Period: π

Asymp: $90°, 270°$

Find the amplitude and period of each function. Then sketch one cycle of the graph of each function. Show all work (including tables!).

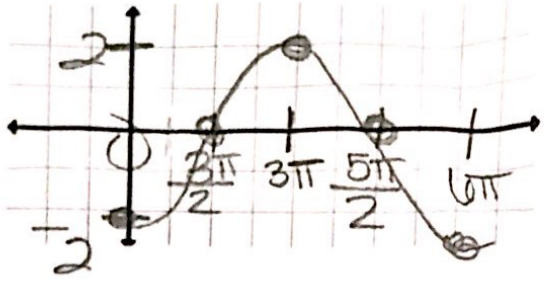
25. $y = 3 \sin 4x$

$A = 3 \quad pd = \frac{2\pi}{4} = \frac{\pi}{2}$

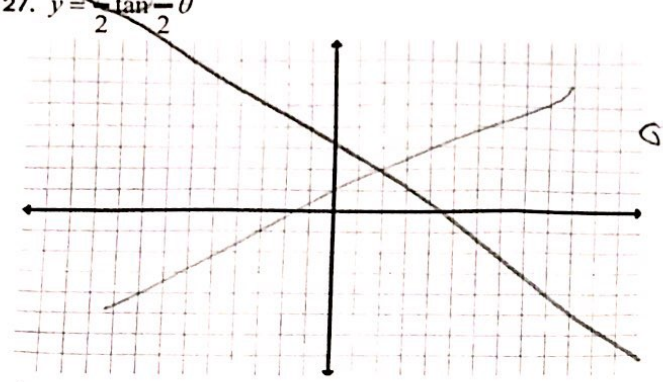


26. $y = -2 \cos \frac{\theta}{3}$

$A = 2 \quad pd = \frac{2\pi}{\frac{1}{3}} = 6\pi$

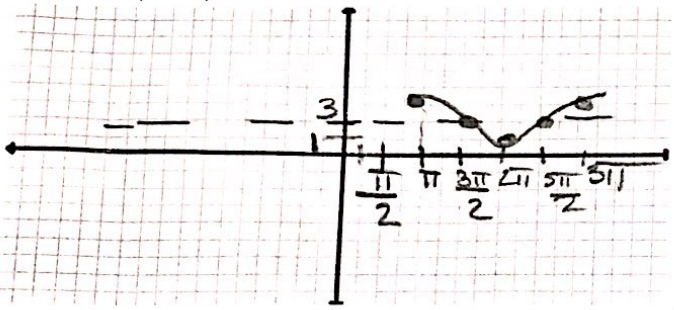


27. $y = \frac{1}{2} \tan \frac{\pi}{2} \theta$



omit

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



2

29. ~~$y = -\sin \frac{\pi}{4}(x + 2) - 1$~~

$y = -\sin 2\left(x + \frac{\pi}{4}\right) - 1$

$A = 1$

$pd = \frac{8\pi}{2} = 4\pi$