

Name: \_\_\_\_\_

School: \_\_\_\_\_



**TEACHING AND LEARNING  
MATHEMATICS COMMON ASSESSMENT REVIEW  
ALGEBRA 2/TRIG (332022)**

**Please show all work and circle all of your answers.**

1. 2 pts each

1. Evaluate the expression.

A.  $32^{4/5}$

B.  $\left(\sqrt[5]{-243}\right)^3$

2. A. 2 pts  
B. 3pts

2. Write the expression in simplest form.

A.  $\sqrt[7]{\frac{x^{21}}{y^7}}$

B.  $\sqrt[3]{81x^7y^2z^{15}}$

3. 3 pts each

3. Solve the equation.

A.  $\sqrt{3x-9} = 10$

B.  $3x^{3/4} = 192$

C.  $\sqrt[4]{2x+3} - 7 = -5$

4. 2 pts each

4. Evaluate the logarithm.

A.  $\log_3 \frac{1}{27}$

B.  $\log_8 64$

5. 1 pt

5. Write  $3^4 = 81$  in logarithmic form.

6. 1 pt

6. Write  $\log_5 125 = 3$  in exponential form.

7. 2 pts each

7. Use the Change-of-Base Formula to evaluate the logarithm. Round your answers to the nearest thousandth.

- A. Set up
- B. Answer

A.  $\log_4 9$

B.  $\log_3 16.7$

8. 3 pts

8. Solve the equation. Check for extraneous solutions.

- A. Base
- B. Equate exponents
- C. Solution

$$7^{2x+1} = 49^{3x+2}$$

9. 2 pts each

- A. Work
- B. Answer

9. Determine whether  $x$  and  $y$  show direct variation, inverse variation, or neither.

A.

x	y
8	9
3	24
36	2
.5	144
6	12

B.

x	y
48	8
12	2
24	3
6	1
21	7

10. 2 pts

- A. Equation
- B. Solution

10. The variables  $x$  and  $y$  vary inversely. Use the given values to write an equation relating  $x$  and  $y$ . Then find  $y$  when  $x = 6$

$$x = -3, y = 8$$

11. 3 pts each

- A. Factor
- B. Cancel
- C. Answer

11. Multiply or divide each expression. Simplify the result.

A.  $\frac{3x^2 + 5x - 2}{x^2 + 2x} \cdot \frac{x^2 - 9}{3x^2 - 10x + 3}$

B.  $\frac{x^2 - 4x - 5}{x + 5} \div (x^2 + 6x + 5)$

12A. 3 pts

- A. Factor
- B. Cancel
- C. Answer

12. Add or subtract the expressions. Simplify the result.

A.  $\frac{2x^2 + x}{2x + 3} - \frac{3}{2x + 3}$

B.  $\frac{x - 3}{x + 5} + \frac{2}{x - 4}$

12B. 4 pts

- A. LCD
- B. Factor
- C. Cancel
- D. Answer

13. 3 pts each

- A. Eliminate fraction
- B. Solve
- C. Solution

13. Solve the equation. Check for extraneous solutions.

A.  $\frac{3}{x + 2} = \frac{-16}{x + 21}$

B.  $\frac{1}{2} + \frac{2}{x} = \frac{6}{x^2}$

14. 4 pts

- A. Distance formula
- B. Distance
- C. Midpoint formula
- D. Midpoint

14. Find the distance between  $(11, -3)$  and  $(8, 1)$ . Then find the midpoint of the line segment joining the two points.

15. 4 pts

- A. Focus
- B. Directrix
- C. Axis of
- D. Symmetry
- E. Graph

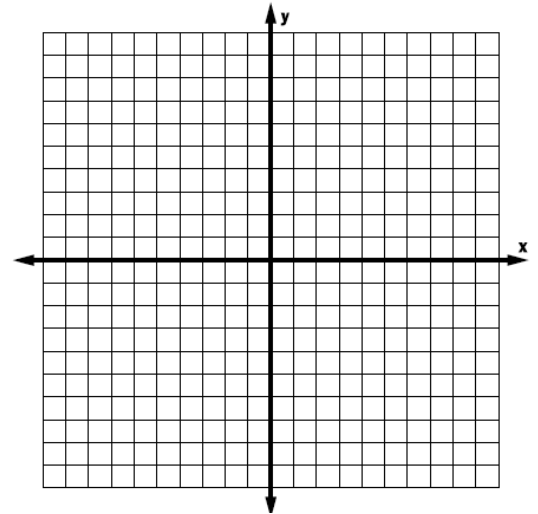
15. Graph the equation. Identify the focus, directrix, and axis of symmetry of the parabola.

$$x^2 = -12y$$

Focus: \_\_\_\_\_

Directrix: \_\_\_\_\_

Axis of Symmetry: \_\_\_\_\_



16. 3 pts

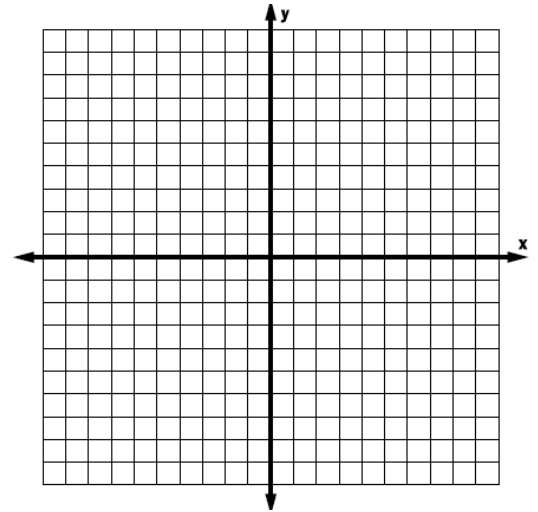
- A. Center
- B. Radius
- C. Graph

16. Graph the equation. Identify the center and radius.

$$7x^2 - 28 = -7y^2$$

Center: \_\_\_\_\_

Radius: \_\_\_\_\_



17. 3 pts

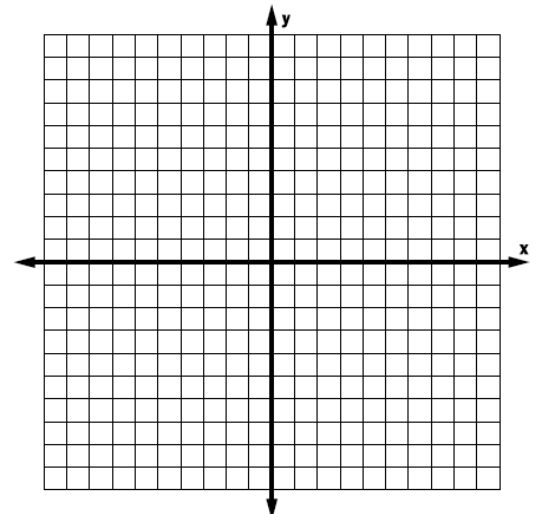
- 13. Vertices
- 14. Co-Vertices
- 15. Graph

17. Graph the equation. Identify the vertices and co-vertices.

$$\frac{x^2}{25} + \frac{y^2}{49} = 1$$

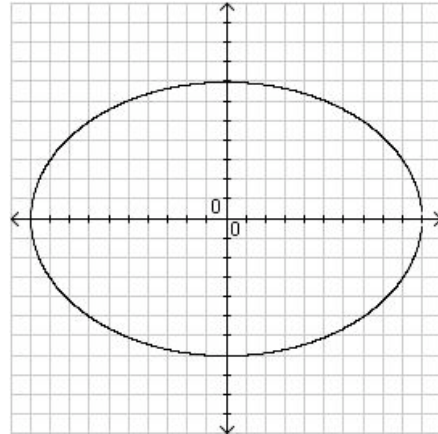
Vertices: \_\_\_\_\_

Co-Vertices: \_\_\_\_\_



18. 2 pts

18. Write the equation for the following graph:



19. 3 pts

19. Graph the equation. Identify the vertices and asymptotes.

- A. Vertices
- B. Asymptotes
- C. Graph

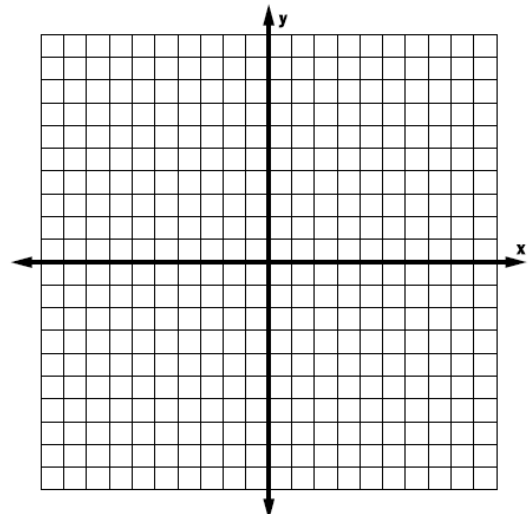
$$\frac{y^2}{16} - \frac{x^2}{9} = 1$$

Vertices:

\_\_\_\_\_

Asymptotes:

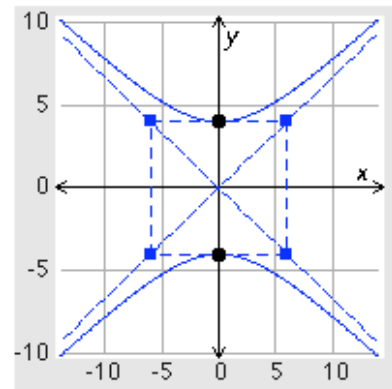
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20. 1 pts

This will be multiple choice on the final.

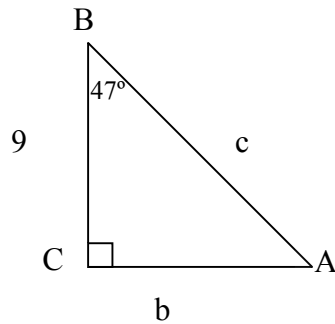
20. Write the equation for the following graph:



21. 4 pts

- A. b
- B. c
- C. A
- D. C

21. Solve  $\triangle ABC$  using the diagram and given measurements. Round answers to the nearest tenth.



$b =$  \_\_\_\_\_

$c =$  \_\_\_\_\_

$m\angle A =$  \_\_\_\_\_

$m\angle C =$  \_\_\_\_\_

22. 2 pts each

22. Convert the following from degrees to radians or radians to degrees.

A.  $210^\circ$

B.  $\frac{7\pi}{6}$

23. 4 pts

- A. Formula
- B. Arclength
- C. Formula
- D. Area

23. Find the arc length and area of a sector with the radius of 18 cm. and

central angle of  $\frac{5\pi}{6}$ . ( $s = r\theta$  and  $A = \frac{1}{2}r^2\theta$ )

24. 2 pts each

24. Sketch the angle. Then find the reference angle.

- A. Sketch
- B. Reference angle

A.  $-225^\circ$

B.  $\frac{11\pi}{3}$

25. 6 pts

25. Solve  $\triangle ABC$ .

$$a = 15, b = 7, m\angle C = 51^\circ$$

2 pts—Law of Cosines

$m\angle A$  \_\_\_\_\_

2 pts—Law of Sines

$m\angle B$  \_\_\_\_\_

2 pts—3rd angle

$c$  \_\_\_\_\_

26. 3 pts

26. Find the general solution of the equation.

A.  $7 \sec x - 7 = 0$

\_\_\_\_\_

B.  $\csc x - 2 = 0$

\_\_\_\_\_

27. 3 pts

27. Solve the equation in the interval  $0 \leq x < 2\pi$ .

A.  $\sec x \csc x - 2 \csc x = 0$

\_\_\_\_\_

28. 1 pt each

28. Find the values of the other five trigonometric functions of  $\theta$ .

A.  $\sin \theta = -\frac{15}{17}, \pi < \theta < \frac{3\pi}{2}$

$\cos \theta$

$\tan \theta$

$\sec \theta$

$\csc \theta$

$\cot \theta$

B.  $\tan \theta = \frac{3}{4}, 0 < \theta < \frac{\pi}{2}$

$\cos \theta$

$\sin \theta$

$\sec \theta$

$\csc \theta$

$\cot \theta$

29. 3 pts

29. Simplify the expression.

A.  $\sec(-x) \cot(-x) \sin(-x)$

B.  $\frac{1 - \cos^2 x}{\cos^2 x}$

30. 3 pts

30. Verify the identity.

$$\frac{\tan^2 x}{\sec x} = \sec x - \cos x$$