

Name _____

School _____



CURRICULUM AND INSTRUCTIONAL SERVICES
MATHEMATICS COMMON ASSESSMENT REVIEW
Algebra 2 (331012)

Please show all work and circle all of your answers.

2 pts each

1. Simplify the expression.

a. $\frac{x^8 y^{-2}}{5y^3} \cdot \frac{y^7}{x^{-3}}$

b. $(3a^4 b^{-7})^{-3}$

c. $\frac{\sqrt[5]{96}}{\sqrt[5]{3}}$

d. $7\sqrt[4]{243} \cdot 3\sqrt[4]{27}$

3 pts
1) multiply
2) simplify
3) descending
order

2. Perform the indicated operation: $(5x + 3)^3$

3 pts each
1) GCF
2) factor
3) solutions

3. Solve by factoring.

a. $4x^5 + 2x^4 - 30x^3 = 0$

b. $x^3 + 3x^2 - 4x - 12 = 0$

2 pts
each

4. Evaluate the expression.

a. $32^{4/5}$

b. $(\sqrt[5]{-243})^3$

a) 2 pts
b) 3 pts

5. Write the expression in simplest form.

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

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

3 pts
each

6. Solve the equations.

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

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

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

1 pt 7. Write $3^4 = 81$ in logarithmic form.

1 pt 8. Write $\log_5 125 = 3$ in exponential form.

2 pts 9. Evaluate the logarithm.

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

b. $\log_8 64$

2 pts 10. Use the Change-of-Base Formula to evaluate the logarithm. Round your
1) set-up answer to the nearest thousandth.

2) answer

$$\log_4 9$$

2 pts 11. Solve by using properties of logarithms.

1) apply log
properties

2) solve

$$\log_3 x + \log_3 4 = \log_3(2x + 5)$$

3 pts 12. Solve the equation. Check for extraneous solutions.

1) base

2) equate

exponents

3) solution

a. $7^{2x+1} = 7^{6x+4}$

b. $49^{x+4} = 7^{6x-4}$

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

2 pts each
1) work
2) answer

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

2 pts
1) equation
2) solution

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

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

3 pts each
1) factor
2) cancel
3) answer

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

- 16a. 3 pts
1) factor
2) cancel
3) answer

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

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

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

- 16b. 4 pts
1) LCD
2) FOIL
3) combine
4) answer

- 17a. 3 pts
1) cross
product
2) solve

17. Solve the equation.

a. $\frac{6}{x - 1} = \frac{9}{x + 1}$

b. $\frac{3x}{x + 2} - \frac{5}{7} = 4$

- 17b. 3 pts
1) LCD
2) combine
3) solve

- 18a. 2 pts
1) distance
formula
2) distance

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

a. distance

b. midpoint

- 18b. 2 pts
1) midpoint
formula
2) midpoint

- 4 pts
 1) focus
 2) directrix
 3) axis of symmetry
 4) graph

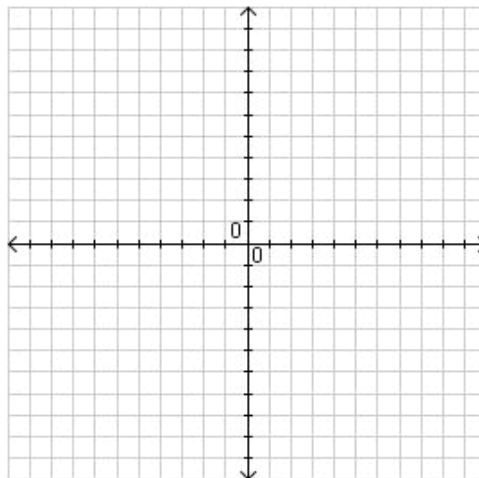
19. Graph the equation. Identify the focus, directrix, and axis of symmetry of the parabola.

$$x^2 = -12y$$

Focus: _____

Directrix: _____

Axis of Symmetry: _____



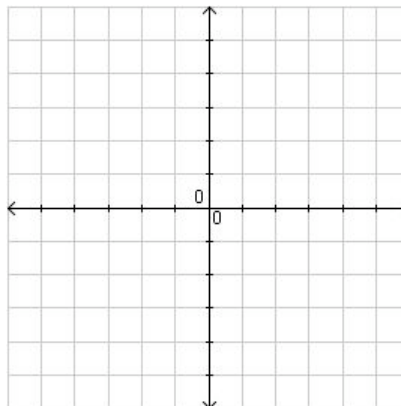
- 3 pts
 1) center
 2) radius
 3) graph

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

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

Center: _____

Radius: _____



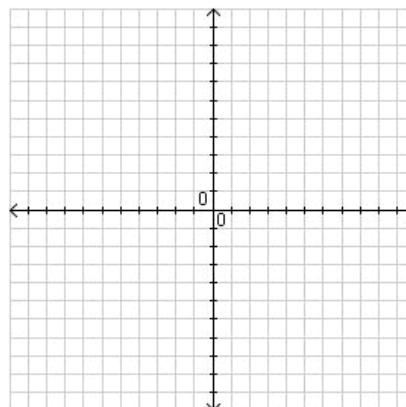
- 3 pts
 1) vertices
 2) co-vertices
 3) graph

21. 20. Graph the equation. Identify the vertices and co-vertices.

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

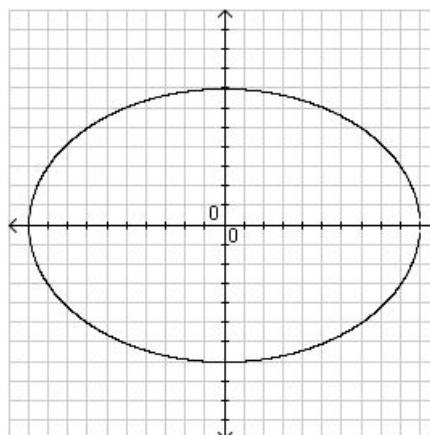
Vertices: _____

Co-Vertices: _____



1 pt
This will be multiple choice on the final.

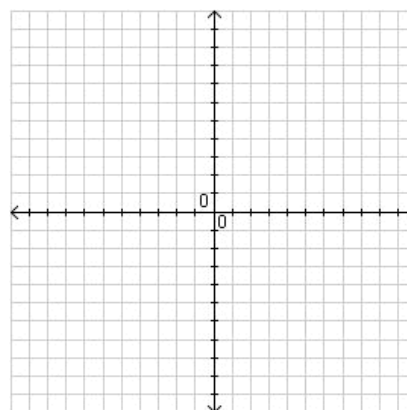
22. Write the equation for the following graph.



3 pts
1) vertices
2) asymptotes
3) graph

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

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

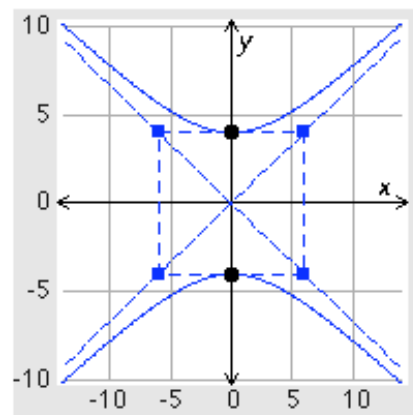


Vertices: _____

Asymptotes: _____

1 pt
This will be multiple choice on the final.

24. . Write the equation for the following graph.



3 pts each
1) identify
2) probability

25. State whether each event is disjoint or overlapping. Then find the probability of each event.

a. A card is randomly selected from a standard deck of 52 cards. What is the probability that it is an Ace or a red card?

b. A card is randomly selected from a standard deck of 52 cards. What is the probability that it is a 2 or a face card?

4 pts
1) mean
2) median
3) mode
4) range

26. The waiting times (in minutes) of several people at a doctor's office are as follows: 24, 19, 30, 39, 22, 19, 26, 35, 42, 15, and 25. Find the mean, median, mode and range of the waiting times.

Mean: _____

Median: _____

Mode: _____

Range: _____