Math 2 Name: _____

Quarter 4 Test Review

Quarter 4 Replacement Test will cover the following units and topics:

- Unit 10 – Radical Equations
  - Converting between rational exponents and radical form
  - Solving radical equations
  - Inverse of Functions
  - Graphing radical equations $y = a\sqrt{x-h}+k$
- Unit 11 – Rational Equations
  - Direct and inverse variation
  - Solving rational equations
    - Proportion = proportion
    - Sum/difference; use LCD to eliminate denominators
  - Graphing rational equations $y = \frac{a}{x-h}+k$
- Unit 12 – Probability

Unit 10 Review

Rewrite the following using rational exponents. Answers should be in simplest form:

1. $\sqrt[3]{v^6}$ _____

2. $\sqrt{xy^2z^3}$ _____

Rewrite the following in simplest radical form:

3. $a^{\frac{1}{5}}$ _____

4. $m^{\frac{2}{3}}$ _____

Solve each equation. Check for extraneous solutions. Write your final answer(s) on the line provided!

5. $5-2\sqrt{x+4}=-1$

6. $\sqrt{x-12}=\sqrt{8x+2}$

7. $\sqrt{x+7}-5=x$

8. $\sqrt[5]{x-4}=2$

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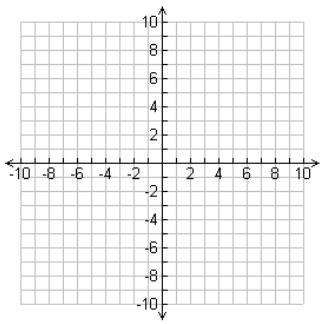
Using words, describe the transformation and graph. Write the domain and range of f(x):

9. $f(x) = -\sqrt{x} + 2$

Transformation: _____

Domain:_____

Range :_____

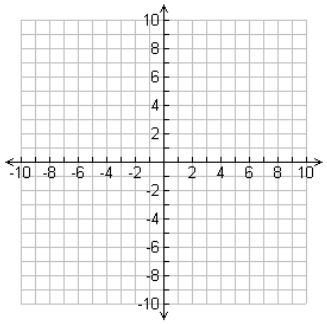


10. $f(x) = \sqrt{-x+1} - 4$

Transformation: _____

Domain:_____

Range :_____

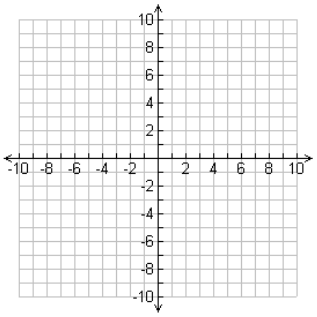


11. $f(x) = 2\sqrt{x}$

Transformation: _____

Domain:_____

Range :_____



Find the inverse algebraically. (Switch x and y, then solve for y.)

12. $y = -\frac{1}{2}x + 3$

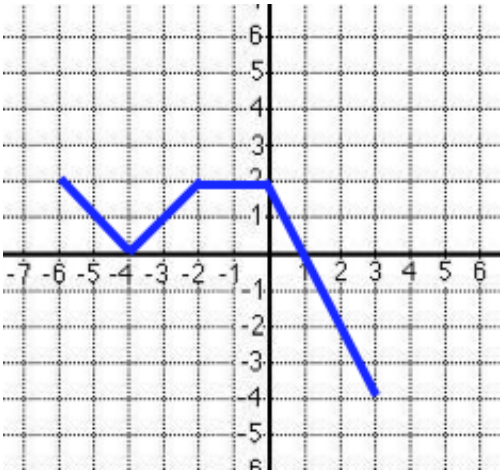
13. $y = (x-2)^{\frac{1}{2}}$

14. Find the inverse of the following table:

x	y
-5	-2
0	-4
5	-8
10	-16

x	y

15. Find the inverse:



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Unit 11 Review - Formulas to Know:

- Direct Variation $y = kx$ k = y/x
- Inverse Variation $y = \frac{k}{x}$ k = yx
- Know the transformations, H.A., V.A., domain and range of rational functions: $y = \frac{a}{x-h} + k$

Answer the following questions given the tables below.

16.

x	-12	-6	3
y	-16	-8	4

a) Direct or Inverse? _____

b) Constant? _____

c) Equation? _____

17.

x	-2	-4	6
y	18	9	-6

a) Direct or Inverse? _____

b) Constant? _____

c) Equation? _____

18. The points (4, 12) and (3, y) represent an inverse variation. Find y.

19. If y varies directly with x and y = 12 when x = -18, find x when y = 2.

20. The sales at a baseball game vary directly with the number of people attending. If the sales for a game are $12,000 when 800 people attend, determine how many people attend if the sales for a game are $15,000.

21. The time it takes to bake a turkey varies inversely with the oven temperature. It takes 3 hours to bake a turkey at 300 degrees. How long would it take to bake the turkey at 450 degrees?

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Solve.

22. $\frac{x}{4} = \frac{9}{4x}$

23. $\frac{x}{2x+1} = \frac{2x}{x+2}$

24. $\frac{x}{2} + \frac{2x}{5} = 4$

25. $\frac{4}{k^2-8k+12} = \frac{k}{k-2} + \frac{1}{k-6}$

<u>Graph</u> the following and describe the <u>transformations</u>. Then identify the <u>vertical asymptote, horizontal asymptote, domain, and range</u>.

26. $f(x) = \frac{3}{x+2} - 7$

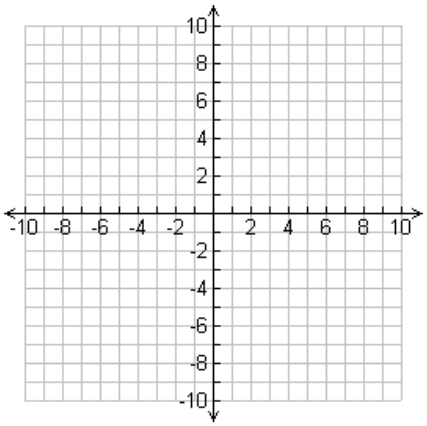
Transformations:

H.A.:

V.A.:

Domain:

Range:



27. $f(x) = -\frac{1}{x-2} + 4$

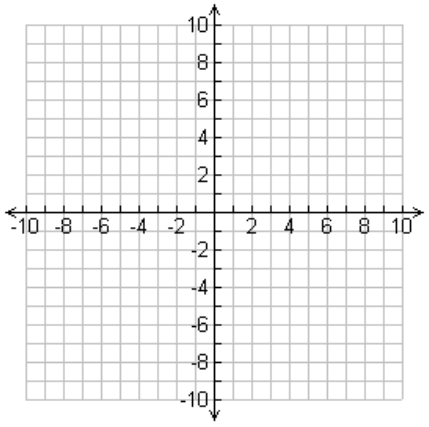
Transformations:

H.A.:

V.A.:

Domain:

Range:



<u>Unit 12 Review</u>

Given $S = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$, $A = \{2, 4, 6\}$ and $B = \{1, 2, 3, 4, 5\}$ answer the following:

28. $A \cup B$: _____

29. $A \cap B$: _____

30. A^C : _____

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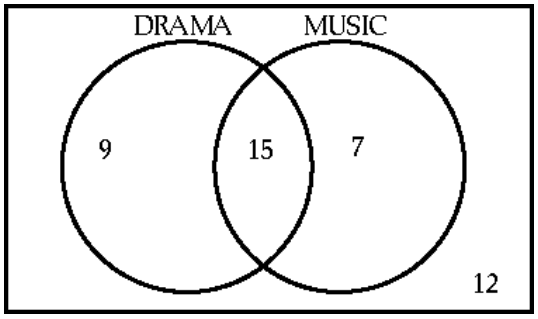
The Venn diagram on the right shows the elective courses students are currently taking.



31. P(drama)?

32. P(drama | music)?

33. P(music^{c})?

34. P(music ∩ drama)?

	Participate in an After-School Sports Program	Do Not Participate in an After-School Sports Program	Total
Female	**232**	**348**	**580**
Male	**168**	**252**	**420**
Total	**400**	**600**	**1,000**

35. What is the probability a student chosen at random does not participate in any after-school sports?

36. What is the probability a student chosen at random participates in after-school sports, given she is a female?

37. What is the probability a student chosen at random participates in after-school sports?

Use a standard deck of cards to answer the following questions about probability.

38. P(heart): _____

39. P(ace or face card): _____

40. What is the probability of drawing a spade, and then another spade (without replacement)? _____

41. What is the probability of drawing a diamond, and then a heart (with replacement)? _____

42. What is the probability of drawing a club or a 7? _____

43. What is the probability of drawing a face card, given the card is red? _____