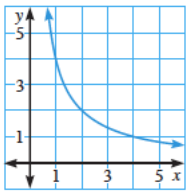
Name:_____

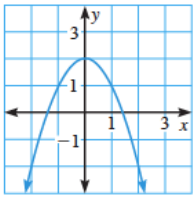
Date:_____Pd:_____

Math 2 Test Review
Direct and Inverse Variations

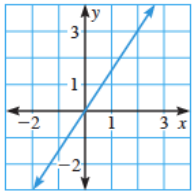
Determine if the following represent a direct variation, inverse variation, or neither.

1. 

inverse

2. 

neither

3. 

direct

4. $y = 9x$
direct

5. $y = \frac{7}{x}$
inverse

6. $y = 5(2)^x$
neither

7.

x	2	12	9	3
y	16	96	72	24

direct

Find the constant of variation for each direct or inverse variation.

8. $y = 1.5x$
k = 1.5

9. $C = 2\pi r$
k = 2

10. $y = \frac{9}{x}$
k = 9

11. $y = \frac{x}{3}$
k = 1/3

Answer the following questions.

12. If z varies directly as x, what will happen to z if x is multiplied by 5?

z is multiplied by 5

13. If y varies inversely as x, what will happen to y if x is multiplied by 4?

z is divided by 4

14. Given the table of an inverse variation function, how can you find the constant of variation?

multiply x and y values

15. Given the table of an direct variation function, how can you find the constant of variation?

divide y/x

Given the tables below, fill out the chart.

16.

x	6	8	10	12	14
y	-24	-32	-40	-48	-56

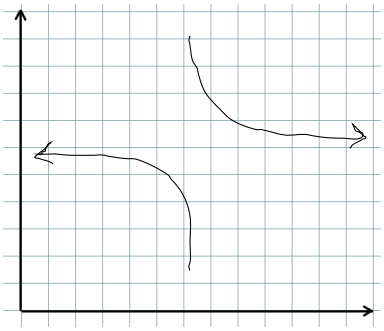
17.

x	2	4	6	8	10
y	5	2.5	1.7	1.25	1

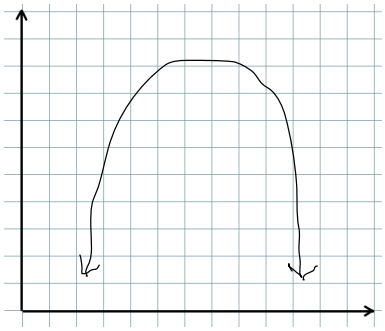
Table	Direct/Inverse	k =	Equation
#16	direct	-4	y = -4x
#17	inverse	10	y = 10/x

Sketch the graph of each direct/Inverse function: I put the wrong type of graphs on the worksheet (oops)

18. $y = \frac{9}{x}$

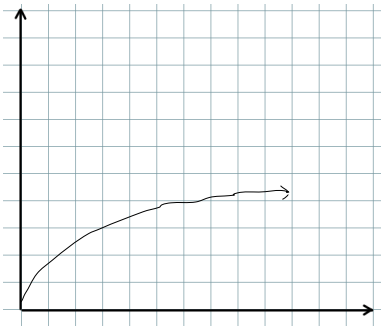


19. $y = -3x^2$

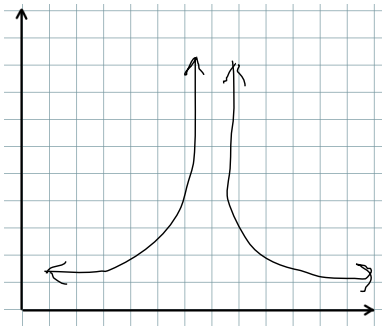


20. $y = 4x^3$

21. $y = \sqrt{x}$



22. $y = \frac{1}{x^2}$



23. If y varies inversely as x and y = 4 when x = 2, find y when x = -14. k = 8, y = -112

24. If y varies directly as x and y = 24 when x = -4, find x when y = 42. k = -6, x = -7

25. If y varies directly as x^2 and y = 27 when x = 3, find y when x = 12. k = 3, y = 432

Use the following to answer questions 26 and 27.

The number of goals scored (g) by a soccer team is directly proportional to the shots on goal (s). The Lakeside Bears scored two goals after 24 shots on goal.

26. Write a direct variation rule to represent the situation. g = (1/12)s

27. If the Bears have 96 shots on goal how many goals will they score? 8

28. y varies directly as x and inversely as z, and has a constant of 5. Write an equation to represent the situation. y = (5x)/z

29. Variable *D* varies directly with the $\sqrt{w}$. If *D* is 117 when *w* = 81, find *w* when *D* = 728. w = 3136

a) *m* = 25 b) *m* = 17.9 c) *m* = 3.6 d) *m* = 22

pay no attention to these answer choices

Use the following to answer questions 30 – 31.

The volume V of a gas varies inversely as the pressure P on it. The volume is 240 cm^3 under pressure of 30 kg/cm^2.

30. Write an inverse variation equation that models the situation. V = 7200/P

31. What pressure has to be applied to have a volume of 160 cm^3. P = 450

32. Supposed ***x*** varies jointly with ***y*** and the square root of ***z***. When ***x*** = -–18 and ***y*** = 2, then ***z*** = 9. **Find *y* when *x* = 10 and *z* = 4.**

k = -3 y = -5/3

33. *y* **varies jointly** as *x* and *w* and **inversely** as the square of *z*. **Find the equation of variation when *y* = 100, *x* = 2, *w* = 4, and *z* = 20. Then solve for *y* when *x* = 1, *w* = 5, and *z* = 4.** k = 250 y = 312.5

True/False

F _____ 34. Inverse variations graphs a straight line though the origin.

F _____ 35. The following table represents inverse variation.

x	1	2	3	6	8	9
y	2.5	5	7.5	15	20	22.5

F _____ 36. The area of a circle is inversely related to the square of its radius. ($A = \pi r^2$)

T _____ 37. Combined variation is when direct and inverse variations occur together.

F _____ 38. If y varies inversely as x^n, then n can be a negative value.

Simplify. Write with positive exponents. Circle your final answer.

39. $(6x^2y^5)(-4xy^5)$

-24x^3y^10

40. $\frac{24x^5y^2}{12x^2y^3}$

2x^3/y

41. $(-3x^3y^3)^3$

-27x^9y^9

42. $(-3x^4)^5(2x^3)^4$

-3888x^32

43. $\frac{(5x^3y^7)(8x^3y^5)}{10x^{10}y^2}$

4y^10/x^4