* tablet calculator

Advanced Algebra 2 **Quiz #8-1 Review Worksheet** **Name:** Key

~~**NO Calculator for the Whole Quiz**~~

Determine if x and y show direct variation, inverse variation, or neither. $y=ax$ $y=\frac{a}{x}$

1. $xy = 12$ $y=\frac{12}{x}$ inverse

2. $y + 6 = 8$ $y=2$ neither

③ $y-6=5x$

The variables x and y vary inversely. Use the given values to write an equation relating x & y. Then, find y when x = -3. $y=\frac{a}{x}$

3. $x = 9, y = 4$

$a = x \cdot y$

$a = 36$

$y=\frac{36}{x}$

$y=\frac{36}{-3}=-12$

need both to answer correctly!

4. $x=\frac{2}{5}, y=20$

$a=\frac{2}{5}\cdot 20$

$a=8$

$y=\frac{8}{x}$

$y=\frac{8}{-3}$

5. The variable z varies jointly with x and y. Also, $z = 40$ when $x = 4$ and $y = -2$. Write an equation that relates x, y, and z. Then, find z when $x = 5$ and $y = -3$. $z=axy$ need a

$40=a\cdot 4\cdot -2$

$a=-5$

$z=-5xy$

$z=-5\cdot 5\cdot -3=75$

Translate the sentence into an equation.

6. A varies inversely with the square root of y. $A=\frac{a}{\sqrt{y}}$ or $A=ay^{-\frac{1}{2}}$

7. x varies directly with d and inversely with the cube of f. $x=\frac{a\cdot d}{\sqrt[3]{f}}$ or $x=a\cdot d\cdot f^{-\frac{1}{3}}$

8. The number n of photos your digital camera can store varies inversely with the average size s (in megapixels) of the photos. Your digital camera can store 48 photos when the average photo size is 2 megapixels. ① Write a model that gives n as a function of s. ② How many photos can your camera store when the average photo size is 4 megapixels?

$n=\frac{a}{s}$

$48=\frac{a}{2}$

$a=96$

$n=\frac{96}{4}=$

① Equation: $n=\frac{96}{s}$

② Force: $n=\frac{96}{4}=24$ (# photos)

9. Given the tables of values below, determine whether x and y show direct variation, inverse variation, or neither. Then write the equation that represents the table.

x	2	5	7	11
y	6	15	21	33

direct $a=\frac{y}{x}$

$a=\frac{6}{2}=3$

$a=\frac{15}{5}=3$

$a=\frac{21}{7}=3$

inverse $a=x\cdot y$

~~$a=2\cdot 6=12$~~

~~$a=5\cdot 15=75$~~

Find the vertical and horizontal asymptotes of each function.

10. $f(x)=\frac{9}{x+1}-4$ VA: $x=-1$ HA: $y=-4$

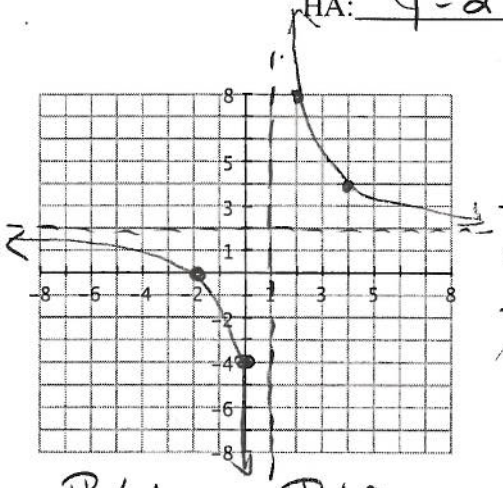
11. $f(x)=\frac{2x^2-5}{3x^2+13x+4}$ VA: $x=-\frac{1}{3}$ $x=-4$ HA: $y=\frac{2}{3}$

$(3x+1)(x+4)=0$

$3x+1=0$ $x+4=0$

Graph each function. State the domain, range, and the equations of the asymptotes.
Clearly mark 2 points on each side of the graph.

12. $y=\frac{6}{x-1}+2$ VA: $x=1$ HA: $y=2$

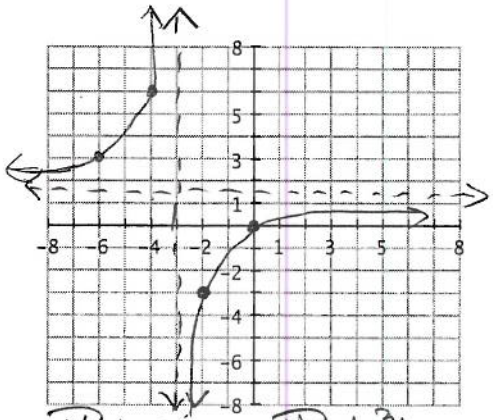


x	y
0	-4
-2	0
2	8
4	4

D: $R\neq 1$ R: $R\neq 2$

13. $y=\frac{3x}{2x+6}$ VA: $x=-3$ HA: $y=\frac{3}{2}$

$\frac{-18}{-12+6}$ $\frac{-6}{-4+6}$ $\frac{-12}{-8+6}$

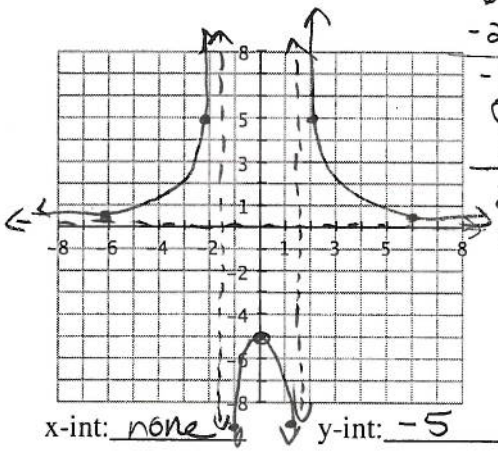


x	y
-4	6
-6	3
0	0
-2	-3

D: $R\neq -3$ R: $R\neq \frac{3}{2}$

Graph each function. State the x & y-intercepts and equations of the asymptotes.

14. $y=\frac{10}{x^2-2}$



x	y
-6	.294
-2	5
-1	-10
0	-5
1	-10
2	5
6	.294

x-int: none y-int: -5

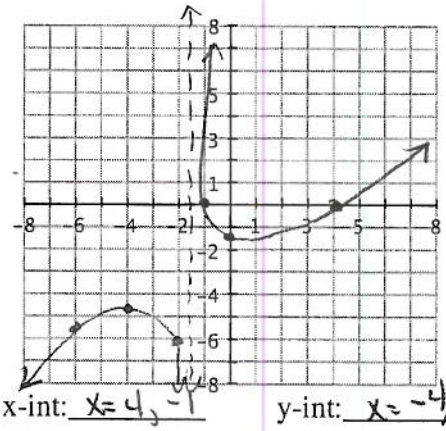
VA: $x=\pm\sqrt{2}$ HA: $y=0$

$x^2-2=0$

$x=\pm\sqrt{2}$

15. $y=\frac{x^2-3x-4}{2x+3}$

$(x-4)(x+1)=0$



x	y
-6	-5.56
-4	-4.8
-2	-6
-1	0
0	-1.3
4	0

x-int: $x=4, -1$ y-int: $x=-4/3$

VA: $x=-\frac{3}{2}$ HA: none

$2x+3=0$