

Trig Review Ch. 3

Quiz 3.7-3.8 Mon.
Test Ch. 3 is Tues.

$$2 = \frac{k \cdot 6 \cdot 4^2}{\sqrt{12}}$$

$$2 = \frac{24k}{2}$$

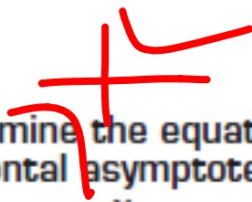
$$4 = 24k$$

$$\frac{4}{24} = \frac{24k}{24}$$

$$y = \frac{1}{6} \frac{xz^2}{\sqrt{w}}$$

$$2 = \frac{1}{6} \frac{12 \cdot 4}{3}$$

$$y = \frac{48}{18} = 2 \frac{2}{3}$$



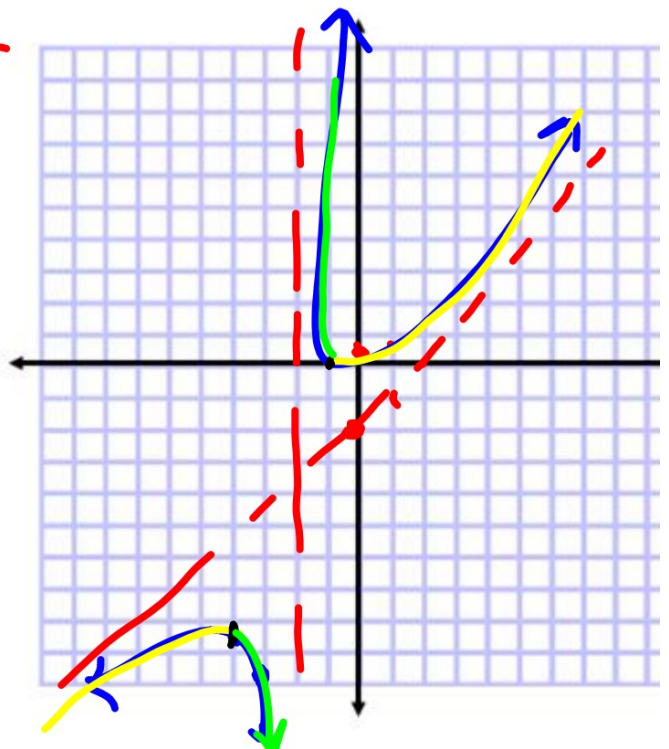
Slant P.P.

Determine the equations of the vertical and horizontal asymptotes, if any, of each function.

52. $f(x) = \frac{x}{x-1}$

53. $g(x) = \frac{x^2 + 1}{x + 2}$

VA	$x = -2$	0	$\frac{1}{2}$
decr	incr.	1	$\frac{2}{3}$
$-4 < x < -2$	$x < -4$	-3	$\frac{10}{-1}$
$(-4, -2)$	$(-\infty, -4]$	-4	$\frac{17}{-2}$
$-$	$x > -1$		
$-2 < x < -1$	$[-1, \infty)$		
$(-2, -1)$			
			$= x - 2$



57. If y varies inversely as the square root of x and $y = 20$ when $x = 49$, find x when $y = 10$.
58. If y varies directly as the square of x and inversely as z and $y = 7.2$ when $x = 0.3$ and $z = 4$, find y when $x = 1$ and $z = 40$.

Write the equation (if asked)

Determine whether the graph of each function is symmetric with respect to the x -axis, y -axis, the line $y = x$, the line $y = -x$, or none of these.

15. $xy = 4$

16. $x + y^2 = 4$

17. $x = -2y$

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

Describe how the graphs of $f(x)$ and $g(x)$ are related.

19. $f(x) = x^4$ and $g(x) = x^4 + 5$

20. $f(x) = |x|$ and $g(x) = |x + 2|$

Graph each inequality.

23. $y > |x + 2|$

25. $y < (x + 1)^2 + 2$

Solve each inequality
 27. $|4x + 5| > 7$

$$\begin{array}{r}
 4x + 5 = -7 \\
 -5 \quad -5 \\
 \hline
 4x = -12 \\
 \frac{4}{4} \quad \frac{4}{4} \\
 x = -3
 \end{array}$$

$$\begin{array}{r}
 4x + 5 = 7 \\
 -5 \quad -5 \\
 \hline
 4x = 2 \\
 \frac{4}{4} \quad \frac{4}{4} \\
 x = \frac{1}{2}
 \end{array}$$

$$\begin{array}{l}
 x > \frac{1}{2} \\
 x < -3
 \end{array}$$

$$-3 > x > \frac{1}{2}$$



Graph each function and its inverse.

29. $f(x) = 3x - 1$

30. $f(x) = -\frac{1}{4}x + 5$

31. $f(x) = \frac{2}{x} + 3$

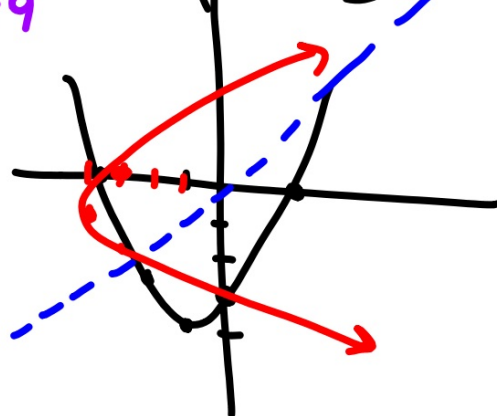
32. $f(x) = (x + 1)^2 - 4$

$$f^{-1}(x) = \pm \sqrt{x+4} - 1 \quad x = (y+1)^2 - 4$$

$$\sqrt{x+4} = \sqrt{(y+1)^2}$$

$$\pm \sqrt{x+4} = y+1$$

$(1, -4) \rightarrow -4, -1$
 $(0, -3) \rightarrow -3, 0$
 $(-2, -3) \rightarrow -3, -2$



Find $f^{-1}(x)$. Then state whether $f^{-1}(x)$ is a function.

33. $f(x) = (x - 2)^3 - 8$

(3-parts)

Determine whether each function is continuous at the given x -value. Justify your response using the continuity test.

35. $y = x^2 + 2; x = 2$

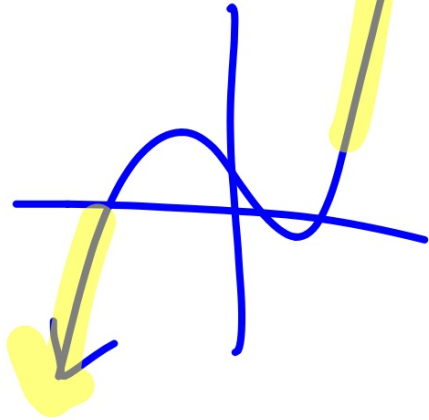
(2, 6)

36. $y = \frac{x-3}{x+1}; x = -1$

Describe the end behavior of each function.

38. $y = 1 - x^3$

39. $f(x) = x^9 + x^7 + 4$



$$x \rightarrow -\infty \quad f(x) \rightarrow -\infty$$

$$x \rightarrow \infty \quad f(x) \rightarrow \infty$$

Determine the interval(s) for which the function is increasing and the interval(s) for which the function is decreasing.

42. $y = -2x^3 - 3x^2 + 12x$

43. $f(x) = |x^2 - 9| + 1$

You need a decent graph to answer these...

Also a good window...

It helps if you know what you are looking for...

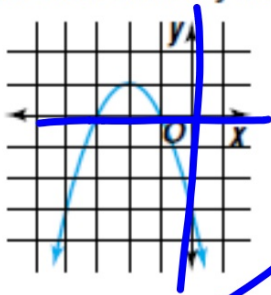
Locate the extrema for the graph of $y = f(x)$.
Name and classify the extrema of the function.

abs max/min

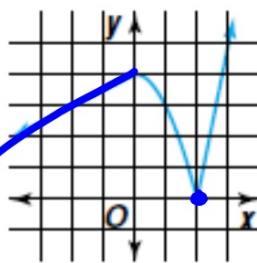
rel max/min

inflection only if asked

44.



45.



rel max $x = 0$

rel. min $x = 2$

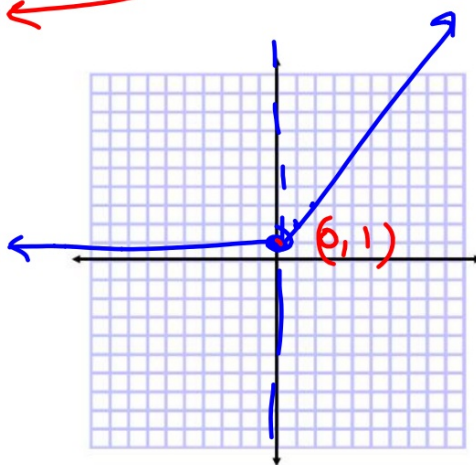
12

$$y = x + 1$$
$$y = 1$$

$$x > 0$$

$$x = 0$$

$$x \leq 0$$



(15)

$$y = x^3 - 3x^2 + x - 1 \quad x=1$$

?, max
min
infl pt

PA-30-PA-31