

pg 164 - 166:

- | | |
|-------------|-------------|
| 33. even | 40. neither |
| 34. even | 41. even |
| 35. odd | 42. odd |
| 36. neither | 45. neither |
| 37. neither | 46. even |
| 38. neither | |
| 39. odd | |

Ch 1 Ditto 2:

9. $y - 4 = 2(x - 2)$ or $y + 6 = 2(x + 3)$
 10. $2x + y + 11 = 0$

**forms of lines: slope-intercept
point slope
standard**

your test tomorrow

**evaluating } f(x) with regular and piecewise
composition }**

**domain } algebraically & from graph
range }**

**Increasing }
Decreasing } Make a sketch!!!
Max
Min }**

*inc/dec → x-values!
min/max → y-value @ x = —*

Piecewise Functions

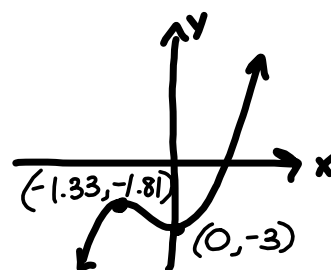
DQ!

Pascals Triangle

TEST Tomorrow



1. Rel Max -6.81 @ $x = -1.33$
 Rel Min -3 @ $x = 0$
 Decreasing $(-1.33, 0)$
 Increasing $(-\infty, -1.33), (0, \infty)$
2.
$$f(x) = \begin{cases} 2x & \text{if } -3 \leq x < -1 \\ 2 & \text{if } -1 \leq x < 3 \\ x+1 & \text{if } x \geq 3 \end{cases}$$



Review PreCalculus:

3. A graph of the function is shown find each:

a) $f(2)$ 3

b) $f(-3)$ -1

5. Find the domain for each:

a) $f(x) = \frac{3}{2x+5}$

b) $f(x) = \frac{2}{\sqrt{x-3}}$

c) $f(x) = \frac{1}{x^2-6x+5}$

$$\left\{x \mid x \neq -\frac{5}{2}\right\}$$

$$\{x \mid x > 3\}$$

$$\{x \mid x \neq 5, 1\}$$

Include Tables!

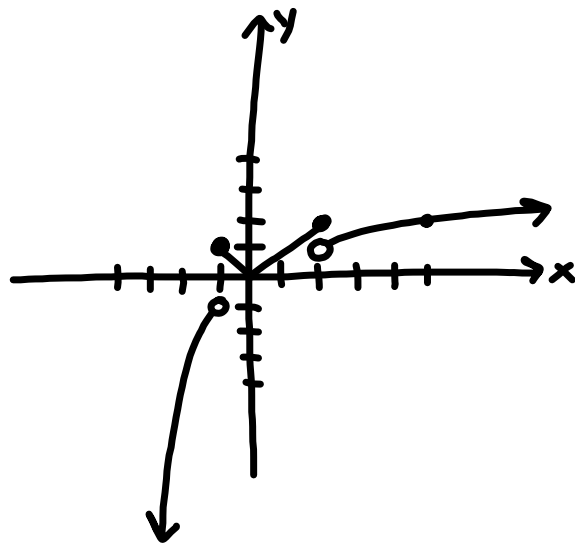
4. Graph the piecewise function on graph paper and find each below:

$$f(x) = \begin{cases} x^3 & \text{for } x < -1 \\ |x| & \text{for } -1 \leq x \leq 2 \\ \sqrt{x-1} & \text{for } x > 2 \end{cases}$$

a) $f(-1)$ 1

b) $f(0)$ 0

c) $f(4)$ $\sqrt{3}$



4. Given $f(x) = x^2 - x - 3$ find each:

b. $f(a-1) = (a-1)^2 - (a-1) - 3$
 $= a^2 - 2a + 1 - a + 1 - 3$
 $= a^2 - 3a - 1$

C. Difference Quotient

$f(x+h) = (x+h)^2 - (x+h) - 3$
 $DQ = \frac{x^2 + 2xh + h^2 - x - h - 3 - x^2 + x + 3}{h}$

a. $f(-3)$
 9

$\rightarrow DQ = \frac{2xh + h^2 - h}{h}$

$DQ = 2x + h - 1$

7. Find the equation of a line containing the point (1,-1) and perpendicular to the line $2x+3y=4$ in standard form

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

$$m = -\frac{2}{3} \perp m = \frac{3}{2}$$

$$(y+1) = \frac{3}{2}(x-1)$$

$$2y+2 = 3x-3$$

$$3x - 2y - 5 = 0$$

8. Write the equation of the line in slope intercept form with $m=3$ and passes through point (-2,-1)

$$y+1 = 3(x+2)$$

$$y+1 = 3x+6$$

$$y = 3x + 5$$

9. Write the equation of line that passes through the points (4,1) and (-2,-1) in point slope form

$$m = \frac{1+1}{4+2} = \frac{1}{3}$$

$$y + 1 = \frac{1}{3}(x + 2) \text{ or } y - 1 = \frac{1}{3}(x - 4)$$

10. Line through (5,-2) & (-3,4). Standard form.

$$m = \frac{4+2}{-3-5} = -\frac{3}{4}$$

$$3x + 4y - 7 = 0$$

$$4(y+2) = \left(-\frac{3}{4}(x-5)\right)4 \quad 4(y-4) = \left(-\frac{3}{4}(x+3)\right)4$$

$$4y+8 = -3x+15$$

$$4y-16 = -3x-9$$

11. Show algebraically whether the function is even odd or neither: hint (do $f(-x)$)

a) $f(x) = 9 - x^2$

$$f(-x) = 9 - (-x)^2$$

$$f(-x) = 9 - x^2$$

same $\rightarrow$ even

b) $f(x) = x^2 + 2x + 1$

$$f(-x) = (-x)^2 + 2(-x) + 1$$

$$f(-x) = x^2 - 2x + 1$$

Neither

12. Given $f(x) = \frac{4}{x^2}$ and $g(x) = 2 - 3x$ find each below:

a) $(f + g)(x) = f(x) + g(x)$

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

$x \neq 0$

b) $\left(\frac{f}{g}\right)(x) = \frac{f(x)}{g(x)}$

$$= \frac{\frac{4}{x^2} \cdot x^2}{(2 - 3x) \cdot x^2}$$

$$= \frac{4}{x^2(2 - 3x)}$$

$$= \frac{4}{2x^2 - 3x^3}, \quad x \neq 0, \frac{2}{3}$$

c) $(f \circ g)(x)$

$$f(g(x)) = \frac{4}{(2 - 3x)^2}$$

$$= \frac{4}{4 - 12x + 9x^2}$$

$$\text{or } = \frac{4}{9x^2 - 12x + 4}$$

$x \neq \frac{2}{3}$

