

Pre-calculus Quiz Review 1.1-1.4

①  $f(x) = \sqrt{x-2}$        $f(5) = \sqrt{5-2}$   
 $f(5) = \sqrt{3}$

D:  $[2, \infty)$   
R:  $[0, \infty)$

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②  $h(x) = \begin{cases} 3+x & x < 0 \\ x^2+1 & x \geq 0 \end{cases}$        $f(-4) = 3+(-4) = -1$   
 $f(0) = 0^2+1 = 1$   
 $f(9) = 9^2+1 = 82$

$f(x) = \begin{cases} 2x+1 & x < 0 \\ 2x+2 & x \geq 0 \end{cases}$        $f(-7) = 2(-7)+1 = -13$   
 $f(0) = 2(0)+2 = 2$   
 $f(20) = 2(20)+2 = 42$

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③  $\frac{f(a+h)-f(a)}{h}$  for  $f(x) = x^2 - x + 1$

①  $f(a+h) = (a+h)^2 - (a+h) + 1$   
 $= 4 + 4h + h^2 - 2 - h + 1$   
 $= h^2 + 3h + 3$

②  $f(a) = a^2 - a + 1 = 3$

$\frac{h^2 + 3h + 3 - 3}{h}$   ~~$-3$~~   
 $\frac{h(h+3)}{h}$   $(h+3, h \neq 0)$

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④  $g(x) = x^3 - 5x$   
 $g(-x) = (-x)^3 - 5(-x)$  ODD  
 $= -x^3 + 5x$

$f(x) = |x+2|$   
 $f(-x) = |-x+2|$  Neither

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⑤  $f(x) = x^2 + x$

$f(x-1) + 1$

$f(-x)$  reflect y-axis

$f(x)+2$  up 2

$-f(x)$  reflect x-axis

$3f(x)$  Vertical stretch 3  $3 \cdot y$

$f(\frac{1}{2}x)$  horizontal stretch  $2 \cdot x$

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⑥  $(-1, 2) \quad 3x - 2y = 5$

a) parallel  
Same slope  
 $y - 2 = \frac{3}{2}(x + 1)$

b) Perpendicular  
opposite reciprocal  
 $y - 2 = -\frac{2}{3}(x + 1)$

$\frac{3x - 2y = 5}{-3x} \quad \frac{-2y = -3x + 5}{-2}$

$y = \frac{3}{2}x - \frac{5}{2}$

Slope =  $\frac{3}{2}$

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7.  $f(x) = x^3 - 3x^2 + 2$

inc.  $(-\infty, 0) \cup (2, \infty)$

dec.  $(0, 2)$

No constant

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⑧  $f(x) = x^2 - 9$

$f(x) > 0 \quad (-\infty, -3) \cup (3, \infty)$

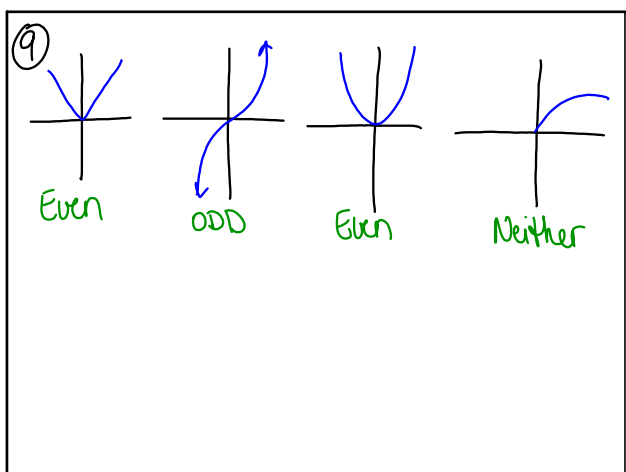
$f(x) \leq 0 \quad [-3, 3]$

$g(x) = x^2 - 4x$

$f(x) > 0 \quad (-\infty, 0) \cup (4, \infty)$

$f(x) \leq 0 \quad [0, 4]$

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Look at notes on graphing a piecewise

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