

Tue 3/26/19  
Math 2311  
Palmer Pgl

Review for test

#38  $f(x) = \frac{x^2 + 7x + 12}{x - 5}$

$\frac{(x+3)(x+4)}{(x-5)}$

**No Holes**

VA:  $x - 5 = 0$   
 $x = 5$

HA: No + HA because there is a slant Asy.

$$\begin{array}{r} x + 12 \\ x - 5 \overline{) x^2 + 7x + 12} \\ \underline{-(x^2 - 5x)} \phantom{+ 12} \\ 12x + 12 \\ \underline{12x - 60} \\ \phantom{12x} - 48 \end{array}$$

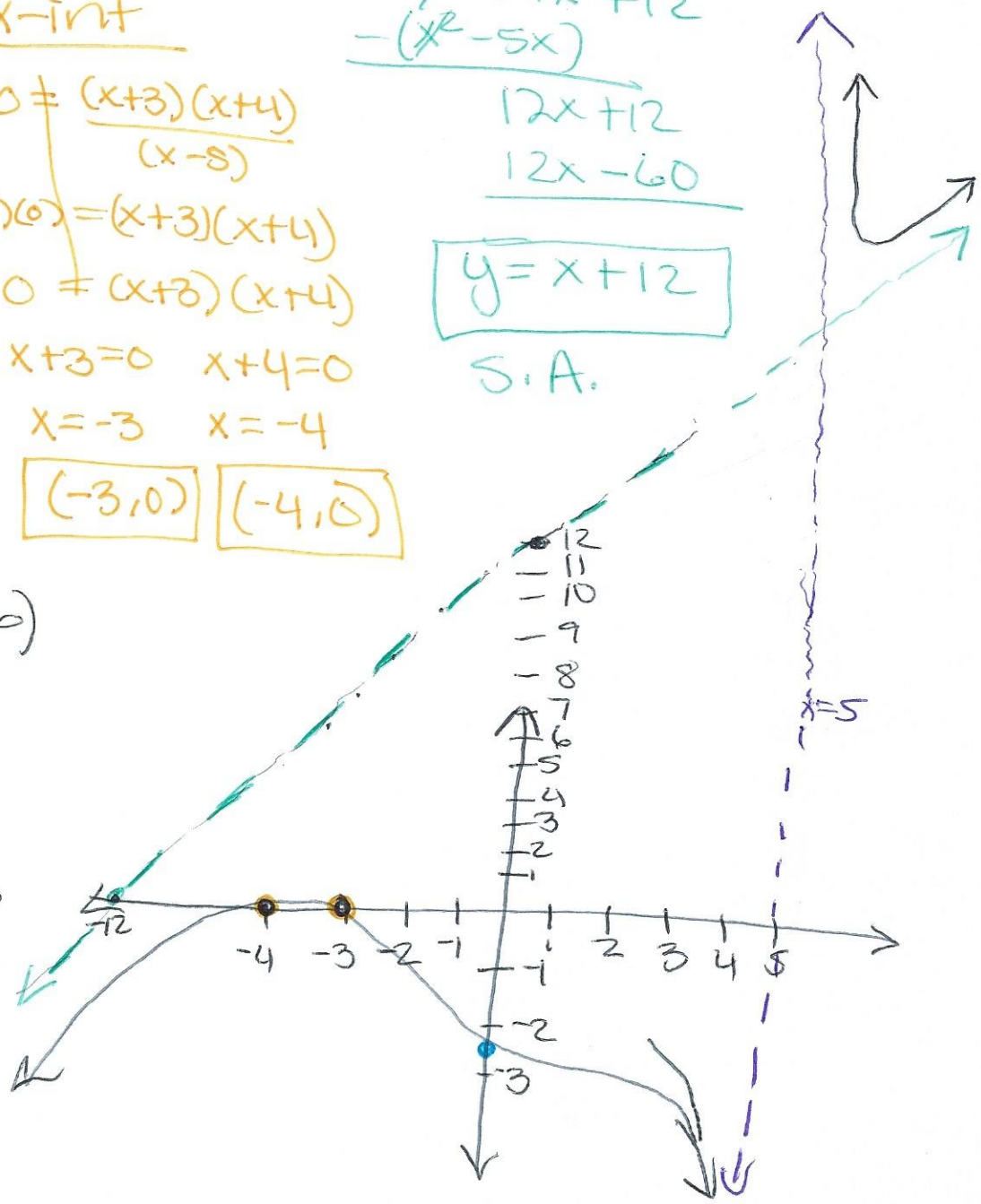
y-int  
 $\frac{(0+3)(0+4)}{(0-5)} = y$   
 $\frac{(3)(4)}{-5} = \frac{12}{-5}$   
 $(0, -12/5)$

x-int  
 $0 \neq \frac{(x+3)(x+4)}{(x-5)}$   
 $(x-5)(0) = (x+3)(x+4)$   
 $0 \neq (x+3)(x+4)$   
 $x+3=0 \quad x+4=0$   
 $x=-3 \quad x=-4$   
 $(-3, 0) \quad (-4, 0)$

$y = x + 12$   
S.A.

D:  $x - 5 \neq 0$   
 $x \neq -5$   
 $(-\infty, -5) \cup (-5, \infty)$

R:  
 $f(4) = \frac{(7)(8)}{-1} = -56$   
 $f(6) = \frac{(9)(10)}{1} = 90$



#44  $(f \circ g)(x)$

$$f(x) = 2x^2 - 5x + 3$$

$$g(x) = x - 7$$

$$2(x-7)^2 - 5(x-7) + 3$$

$$2(x^2 - 14x + 49) - 5x + 35 + 3$$

$$2x^2 - 28x + 98 - 5x + 38$$

$$(f \circ g)(x) = 2x^2 - 33x + 136$$

#28)  $(3x^3 - 5x^2 + 1) \div (x-2)$

$$(3x^3 - 5x^2 + 0x + 1) \div (x-2)$$

$$\begin{array}{r} 2 \overline{) 3 \quad -5 \quad 0 \quad 1} \\ \underline{\phantom{2} 6 \quad 2 \quad 4} \\ 3 \quad 1 \quad 2 \quad 5 \end{array}$$

$$\left( 3x^2 + x + 2 + \frac{5}{x-2} \right)$$

#2

$$f(x) = 2x^2 - 8x + 7$$

$$\text{vertex: } \frac{-b}{2a} = \frac{-(-8)}{2(2)} = \frac{8}{4} = 2$$

$$f(2) = 2(2)^2 - 8(2) + 7 = -1$$

$$(2, -1)$$

y-int

$$y = 2(0)^2 - 8(0) + 7 = 7$$

$$(0, 7)$$

x-int

vertex form:  
 $a(x-h)^2 + k$

axis of symmetry

$$x = 2$$

$$2(x-2)^2 - 1 = 0$$

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

$$(x-2)^2 = \frac{1}{2}$$

$$(x-2) = \pm \sqrt{\frac{1}{2}}$$

$$x = 2 \pm \frac{1}{\sqrt{2}}$$

$$x \approx 2.7$$

$$x \approx 1.3$$

