

Algebra 2 Warm Up Day 1 Ch 5

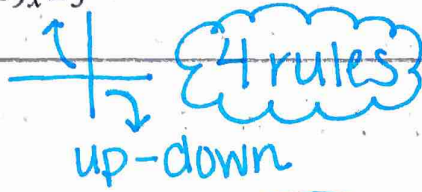
1. Solve for x:  $x^2 - 2x + 10 = 0$

$$X = \frac{-(-2) \pm \sqrt{(-2)^2 - 4(1)(10)}}{2(1)} = \frac{2 \pm \sqrt{4 - 40}}{2} = \frac{2 \pm \sqrt{-36}}{2} = \frac{2 \pm 6i}{2} = \boxed{1 \pm 3i}$$

2. Determine the end behavior for  $y = 4x^2 - 7x^3 + 9x - 5$

D: 3 (highest exp)

LC: -7 (# w/ degree)



3. Factor

a.  $y = x^2 - x - 20$    
 ← add mult.

$$y = (x+4)(x-5)$$

b.  $y = 3x^2 - 19x - 14$

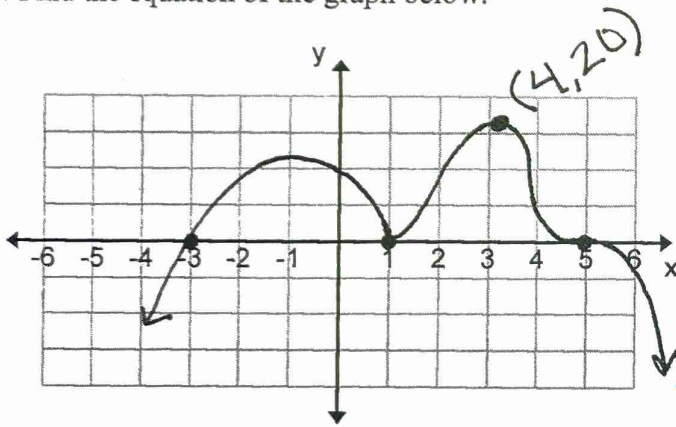
a.c = 3 · -14 = -42

b = -19 ↓  
-21 & 2

$$y = \underbrace{3x^2 - 21x}_{3x(x-7)} + \underbrace{2x - 14}_{2(x-7)}$$

$$\boxed{(3x+2)(x-7)}$$

4. Find the equation of the graph below:



$$y = a(x+3)(x-1)^2(x-5)^3$$

$$20 = a(4+3)(4-1)^2(4-5)^3$$

$$20 = a(7)(9)(-1)$$

$$20 = -63a$$

$$-20/63 = a$$

$$y = -20/63(x+3)(x-1)^2(x-5)^3$$

5. Is  $x-2$  a factor of  $f(x) = x^3 - 5x^2 + 2x + 8$ ? Complete the long division & factor completely if possible.

$$\begin{array}{r} x^2 - 3x - 4 \\ x-2 \overline{) x^3 - 5x^2 + 2x + 8} \\ \underline{-(x^3 - 2x^2)} \phantom{+ 8} \\ 3x^2 + 2x + 8 \\ \underline{-(3x^2 + 6x)} \phantom{+ 8} \\ -4x + 8 \\ \underline{-(-4x + 8)} \\ 0 \end{array}$$

factor?

$$\boxed{(x-4)(x+1)(x-2)}$$

6. Expand completely  $(2x+5)^4$  ← row 4

1 row 0  $a=2x$   
1 1  $b=5$   
1 2 1  
1 3 3 1  
1 4 6 4 1

$$1(2x)^4 5^0 + 4(2x)^3 5^1 + 6(2x)^2 5^2 + 4(2x) 5^3 + 1(2x)^0 5^4$$

$$16x^4 + 160x^3 + 600x^2 + 1000x + 625$$

7. Graph  $y = 2(x+1)^2(x+3)(x-4)^3$

D: 0    LC: 2    ↗ ↘  
D    S    T

