

MATH 190 QUIZ 3

September 15, 2014

Name: ANSWERS

Instructions: (1) No calculators! (2) Write answers in the space provided.

1. Complete the following formulas:

(a) $(a + b)^2 = \underline{a^2 + 2ab + b^2}$ (b) $a^2 - b^2 = \underline{(a-b)(a+b)}$
 (c) $(a - b)^2 = \underline{a^2 - 2ab + b^2}$ (d) $a^3 + b^3 = \underline{(a+b)(a^2 - ab + b^2)}$

2. Compute the following:

(a) $(3^{1/3} + 2^{1/3})(3^{2/3} - 2^{1/3} \cdot 3^{1/3} + 2^{2/3}) = \underline{5}$
 (b) $(4^{1/2} - 3^{1/2})(4^{1/2} + 3^{1/2}) = \underline{1}$
 (c) $(a - b)^3 = \underline{a^3 - 3a^2b + 3ab^2 - b^3}$

3. Factor completely:

(a) $64a^3 - \frac{1}{8} = \underline{(4a - \frac{1}{2})(16a^2 + 2a + \frac{1}{4})}$ (b) $10x^3 + 270 = \underline{10(x+3)(x^2 - 3x + 9)}$
 (c) $m^6 - n^6 = \underline{(m-n)(m+n)(m^2 - mn + n^2)(m^2 + mn + n^2)}$ (d) $16 - \frac{1}{36}a^2 = \underline{(4 - \frac{1}{6}a)(4 + \frac{1}{6}a)}$
 (e) $x^2 - 6x + 9 - y^2 = \underline{(x-y-3)(x+y-3)}$ (f) $16x^4 - 81 = \underline{(2x-3)(2x+3)(4x^2+9)}$
 (g) $2x^3y + 4x^2y + 2xy = \underline{2xy(x+1)^2}$ (h) $8 - 2x - x^2 = \underline{(2-x)(4+x) \text{ or } -(x-2)(x+4)}$
 (i) $12x^2 - 75 = \underline{3(2x-5)(2x+5)}$ (j) $9x^3 + 18x^2 - 4x - 8 = \underline{(x+2)(3x-2)(3x+2)}$
 (k) $60y^2 - 15y - 45 = \underline{15(y-1)(4y+3)}$ (l) $x^2 + 14xa + 48a^2 = \underline{(x+6a)(x+8a)}$

Bonus Question (you must complete all other problems to be eligible):

Solve for x : $(x - 1)^2 + 6(x - 1) = -5$ $x = \underline{0; -4}$