

DMY ASSIGNMENT 1 - SPRING 2007

1. (a) $x+5=2 \Leftrightarrow (x+5)-5=2-5 \Leftrightarrow \underline{x=-3}$

(b) $2x-8=7x-2 \Leftrightarrow 2x-8-(2x-2)=7x-2-(2x-2) \Leftrightarrow -6=5x \Leftrightarrow \underline{x=-\frac{6}{5}}$

2. (a) $(-2)(-8)-5(-4) = (16)-(-20) = 16+20 = \underline{36}$

(b) $-\frac{8}{12} - \left(-\frac{14}{23}\right) = -\frac{8}{12} + \frac{14}{23} = -\frac{2}{3} + \frac{14}{23} = \frac{-46+42}{3 \cdot 23} = \frac{-46+42}{3 \cdot 23} = \frac{-4}{3 \cdot 23} < 0$

so $\underline{-\frac{14}{23} > -\frac{8}{12}}$

(c) $(-2)^3 + (-1)^4 - (-1)^2 = (-8) + 1 - (1) = \underline{-8}$

(d) $(2c+5d)^2 = (2c+5d)(2c+5d) = 4c^2 + 25d^2 + 10cd + 10dc = \underline{4c^2 + 25d^2 + 20cd}$

(e) $(3x^2-8+4x)(3x^2+2-4x) = (3x^2-(2-4x))(3x^2+(2-4x))$
 $= 9x^4 - (2-4x)^2$ m. h. a. konjugatregeln.
 $= 9x^4 - (4-16x+16x^2)$
 $= \underline{9x^4 - 16x^2 + 16x - 4}$

(f) $(2a+b)^3 = (2a+b)(2a+b)(2a+b) = (4a^2+b^2+4ab)(2a+b)$
 $= 8a^3 + \underline{2ab^2} + \underline{8a^2b} + \underline{4a^2b} + b^3 + \underline{4ab^2}$
 $= \underline{8a^3 + 12a^2b + 6ab^2 + b^3}$

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