MATH

Solve each of the following problems using the direct, inverse and joint variation equations. Make sure to show all work on a separate sheet of paper.

1. y varies directly as x. x = 3 when y = 12. Find y when x = 12.
2. a varies directly as b. b = 1 when a = 5. Find b when a = 2.
3. y varies inversely as x. x = 4 when y = 3. Find y when x = 7.
4. m varies inversely as n. n = 6 when m = 2. Find m when n = 3.
5. Y varies inversely as x. x = 3 when y = -2. Find y when x = 10.
6. z varies jointly as x and y. x = 3 and y = 2 when z = 12. Find z when x = 4 and y = 5.

Simplify.

1) $6(-6n+4)+8n$

2) $-6+6(6-2x)$

3) $5+7(-2k+4)$

4) $-2(n-7)+2n$

5) $3(1-7p)+8p$

6) $-2(-3-x)+6x$

7) $-6x-8(x+7)$

8) $-7+3(1+5v)$

9) $(-4k^4+14+3k^2)+(-3k^4-14k^2-8)$

10) $(3-6n^5-8n^4)-(-6n^4-3n-8n^5)$

$2x(-2x-3)$

4) $-4(v+1)$

5) $(2n+2)(6n+1)$

6) $(4n+1)(2n+6)$

7) $(x-3)(6x-2)$

8) $(8p-2)(6p+2)$

9) $(6p+8)(5p-8)$

10) $(3m-1)(8m+7)$

$(4a+2)(6a^2-a+2)$

20) $(7k-3)(k^2-2k+7)$