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### 1.1 Polynomial Operations

## Simplify each sum.

1) $\left(4 k^{2}+7\right)+\left(8 k^{2}-7-3 k^{4}\right)$
2) $(6 p+1)+\left(6-7 p^{2}-8 p\right)$
3) $\left(8 k^{3}-6 k^{4}+2\right)+\left(2 k^{3}+2+k^{4}\right)$
4) $\left(2-x^{2}+5 x^{4}+5 x\right)+\left(5 x^{2}-x^{4}-4 x\right)$

Simplify each difference.
5) $\left(6+r^{3}\right)-\left(2 r^{3}-5-5 r\right)$
6) $\left(8 x^{3}+2 x-7 x^{4}\right)-\left(4 x^{4}-4 x^{3}\right)$
7) $\left(2 x^{4}+5 x^{2}+8 x\right)-\left(7 x^{3}-3 x^{2}-3 x\right)$
8) $\left(5+4 x^{3}+7 x-x^{4}\right)-\left(8 x-6-5 x^{4}\right)$

Simplify each expression.
9) $\left(3 n+2 n^{3}+4 n^{4}\right)-(?)=4 n^{4}-2 n^{3}-5 n$
10) (?) $+(3-5 n)=6 n^{4}-n+8$
11) (?) $-\left(3-6 k+7 k^{3}\right)=7 k^{4}-7 k^{3}+8 k+3$
12) $\left(6-4 n^{4}+7 n-2 n^{3}\right)-(?)=-3 n^{4}-7 n^{3}+11$

## Find each product.

13) $(b-6)(7 b+3)$
14) $(8 n-3)(n+8)$
15) $(4 v-1)(5 v+7)$
16) $(6 v+4)\left(7 v^{2}-3 v-6\right)$
17) $(8 x-8)\left(5 x^{2}-7 x-6\right)$
18) $\left(3 x^{2}+6 x-4\right)\left(8 x^{2}+7 x-8\right)$
19) $\left(5 n^{2}-6 n+8\right)\left(7 n^{2}-7 n+8\right)$
20) The side of a cube is represented by $x+1$. Find, in terms of $x$, the volume of the cube in standard form.
21) Let an interger be represented by $x$. Find, in terms of $x$, the product of three consectutive integers starting with x , in standard form.
22) The length of a rectangular window is 5 feet more than its width, w . The area of the window is 36 square feet. Write an equation that could be used to find the dimensions of the window.
23) Write a variable expression, in standard form, for the area of a square whose side is $\mathrm{x}+8$.
24) A rectangular swimming pool is twice as long as it is wide. A small concrete walkway surrounds the pool. The walkway is a constant 2 feet wide and has an area of 196 square feet. Find the dimensions of the pool. (Honors only)
