SM2 HW #9-1 (Complex Numbers and Combining Functions)

Period____

Simplify. Write your answers in "a + bi" form.

1) $(-4i) + (-1 + 2i) + (8i)$

2) $(7 - 6i)(2 + 7i)$

3) $-\dfrac{2}{7i}$

4) $\dfrac{2 + 8i}{10i}$

5) $\dfrac{10 + 2i}{-5 + 8i}$

6) $\dfrac{1 + 5i}{3 + 2i}$

Simplify.

7) $-3\sqrt{12} - 2\sqrt{27}$

8) $\dfrac{\sqrt{15}}{2\sqrt{80}}$

9) $\sqrt[3]{625x^5y^5}$

Solve each equation by factoring. "Solve" means "find the value of the variable that makes the equation true." Factoring a standard form quadratic equation is how you convert it to "intercept form."

10) $x^2 - 2x - 3 = 0$

11) $n^2 + 6n = 0$

12) $3m^2 - 10m + 7 = 0$

13) $3k^2 + k - 2 = 0$

Perform the indicated operation.

14) $g(x) = -2x + 5$
$h(x) = x + 3$
Find $(g + h)(x)$

15) $h(t) = 3t + 4$
$g(t) = t^3 - 2t$
Find $(h + g)(t)$

16) $h(x) = x^3 - x$
$g(x) = 4x - 4$
Find $(h + g)(-4)$

17) $g(x) = x - 3$
$f(x) = -3x - 5$
Find $(g - f)(x)$

18) $f(n) = 3n + 5$
$g(n) = 4n + 1$
Find $(f \cdot g)(n)$

19) $g(t) = -3t - 3$
$f(t) = 2t - 5$
Find $(g \cdot f)(-5)$

20) $f(n) = 3n - 5$
$g(n) = n^2 + 3$
Find $(-2f - 2g)(n)$

21) $g(t) = 4t - 5$
$h(t) = t - 2$
Find $(-4g - 5h)(t)$

22) $h(t) = -2t - 3$
$g(t) = t^2 + 3t$
Find $(2h + 2g)(t)$

23) $f(n) = -n^3 - 4$
$g(n) = -2n - 3$
Find $(5f + 2g)(n)$

24) $g(x) = x^2 + x$
$h(x) = 3x$
Find $(-3g + 5h)(-5)$

25) $h(x) = 4x - 3$
$g(x) = x^2 + 3$
Find $(h - g)(1)$