Name_____ ID: 1

Unit 3 Test Review

Date_____ Period_____

Name each polynomial by degree and number of terms.

1) $-4x^5$

2) $-4p^3 + p^2$

Put each polynomial in standard form

3) $8xy - 2x^3y^3 - 5x^2y^2 + 8y^4$

Simplify each sum.

4) $(5x^3 - 1 - 4x^2) + (2x + 7x^2 - 5)$

Simplify each difference.

5) $(x^3 + 7x) - (2x - 4x^3 + 3)$

Find each product.

6) $(5p - 5)(p^2 + 5p - 2)$

Perform the indicated operation.

7) $g(a) = 3a + 1$
   $f(a) = a^3 - 5a^2$
   Find $(g \cdot f)(a)$

8) $h(t) = 2t + 2$
   $g(t) = t^3 - 1 - t$
   Find $(h - g)(t)$

9) $g(x) = 4x + 4$
$f(x) = x^3 + 3x^2$
Find $\left(\dfrac{g}{f}\right)(-6)$

10) $f(n) = 2n - 3$
$g(n) = -n^2 - 3n$
Find $\left(\dfrac{f}{g}\right)(-1)$

11) $g(x) = x^2 - 2$
$f(x) = x + 3$
Find $(g \circ f)(-2)$

12) $f(a) = a^2 - 5 - 2a$
$g(a) = a + 4$
Find $(f \circ g)(10)$

13) $f(x) = 2x + 1$
$g(x) = x^2 + 4$
Find $f(g(x))$

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

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

16) $g(n) = -4n - 4$
$h(n) = 3n - 3$
Find $g(h(10))$

Use synthetic division to divide.

17) $\left(x^3 + 3x^2 - x + 12\right) \div (x + 4)$

18) $\left(x^3 + 8x^2 - 12x + 3\right) \div (x - 1)$

19) $\left(3n^3 - 18n^2 - 55n + 64\right) \div (n - 8)$

20) $\left(x^3 - 5x^2 + 7x + 2\right) \div (x - 1)$

Use long division to divide.

21) $\left(3a^3 - 11a^2 - 94a - 80\right) \div (3a + 10)$

22) $\left(5m^3 + 32m^2 + 24m - 27\right) \div (5m - 3)$

23) $\left(7n^3 - 65n^2 - 38n + 22\right) \div (7n - 2)$

24) $\left(4b^3 + 31b^2 + 33b + 8\right) \div (4b + 3)$

Find the inverse of each function.

25) $g(x) = \sqrt[3]{x+2} - 1$

26) $g(x) = \sqrt{x-5} - 1$

27) $g(x) = (x-1)^3 - 1$

Expand completely using Pascal's Triangle.

28) $(x+y)^4$

29) $(u+3)^5$

30) $(2y-1)^6$

31) $(x-2y)^6$