

## Review for Unit # 3 Test WS

**Perform the indicated operation.**

1)  $g(a) = 2a - 4$   
 $f(a) = 3a - 2$   
 Find  $(5g + 2f)(a)$

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

3)  $f(x) = 2x - 5$   
 $g(x) = 2x + 1$   
 Find  $(f \cdot g)(x)$

4)  $g(x) = 4x - 3$   
 $f(x) = 2x + 1$   
 Find  $\left(\frac{g}{f}\right)(x)$

5)  $f(n) = -4n - 1$   
 $g(n) = 3n + 2$   
 Find  $(f \circ g)(n)$

6)  $g(n) = n^3 + 2$   
 $h(n) = 2n - 3$   
 Find  $(g \circ h)(n)$

7)  $g(n) = 4n - 2$   
 $f(n) = n + 4$   
 Find  $(g \circ f)(-9)$

8)  $g(t) = 2t - 4$   
 $f(t) = t^2 - 2t$   
 Find  $(g \cdot f)(-1)$

9)  $f(x) = 3x + 1$   
 $g(x) = x^2 - 3x$   
 Find  $(4f + 3g)(-7)$

10)  $f(t) = t^2 + 3$   
 $g(t) = 2t + 1$   
 Find  $(f \circ g)(-7)$

**Describe the end behavior of each function.**

11)  $f(x) = x^3 - 13x^2 + 56x - 82$

12)  $f(x) = -x^4 - x^3 + x^2 - 1$

13)  $f(x) = -x^5 + 4x^3 - 4x + 1$

14)  $f(x) = x^2 - 4x - 2$

**Write a polynomial function using the given zeros.**

15)  $-3, -4, 2$

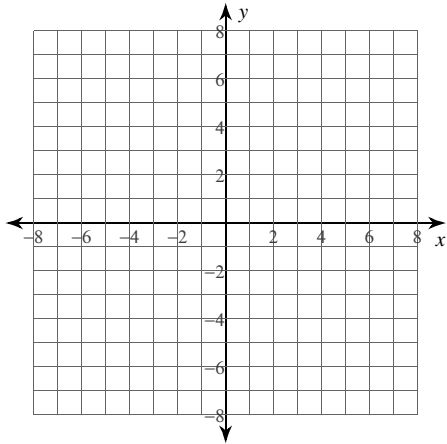
16)  $-3$  mult. 2,  $-\frac{4}{5}$

17)  $\frac{1}{3}, \frac{3}{2}, 0, \frac{1}{2}$

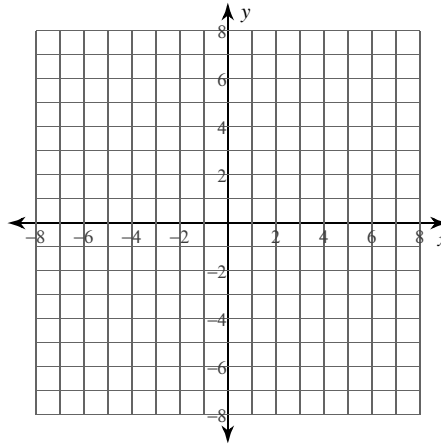
18)  $-\frac{1}{2}$  mult. 2,  $-\frac{3}{2}, 5$

Graph each polynomial function very ACCURATELY.

19)  $f(x) = x^3 - 3x^2 + 4$



20)  $f(x) = x^4 + 3x^3 - 5 - 5x$



Divide using long or synthetic division (which ever method is appropriate).

21)  $(18p^3 + 6p^2 - 76p + 47) \div (6p - 8)$

22)  $(3n^4 + 13n^3 + 23n^2 + 36n + 38) \div (3n + 7)$

23)  $(a^4 + 3a^3 - 44a^2 + 27a - 44) \div (a - 5)$

24)  $(6n^5 + 59n^4 + 45n^3 + 8n + 75) \div (n + 9)$

Using factoring and other quadratic techniques, find all zeros for each polynomial.

25)  $x^3 - 4x^2 - 2x + 8 = 0$

26)  $x^4 + 9x^2 + 20 = 0$

27)  $x^3 + 64 = 0$

28)  $x^5 + 2x^3 - 3x = 0$

Find the remaining zero(s) for each polynomial and its given information.

29)  $f(x) = 2x^3 + x^2 - 14x + 12$   
where  $(2x - 3)$  is a factor.

30)  $f(x) = 3x^3 - 19x^2 + 28x$   
where  $x$  and  $(x - 4)$  are factors.

31)  $f(x) = 2x^4 + 8x^3 - 7x^2 - 42x - 9$   
where  $(x + 3)^2$  are factors.

32)  $f(x) = 60x^4 + 61x^3 - 155x^2 - 62x + 24$   
where  $(4x - 1)$ ,  $(x + 2)$ , and  $(3x - 4)$  are factors.

**Find all zeros for each polynomial.**

33)  $f(x) = 2x^3 + 7x^2 + 2x - 6$

34)  $f(x) = 7x^3 - 11x^2 - 7x + 11$

35)  $f(x) = 3x^4 + 4x^3 + 8x^2$

36)  $f(x) = 3x^4 - 7x^3 + 42x^2 - 112x - 96$

37)  $f(x) = 6x^5 + 37x^4 - 4x^3 - 264x^2 - 128x + 128$

38)  $f(x) = 24x^5 - 26x^4 - 205x^3 + 319x^2 + 96x - 180$