

**Determine the function/equation with the following roots:**

1.  $x = \frac{-1}{2}, 0, -4$

2.  $x = 0$  mult of 3,  $\frac{4}{5}$  mult of 2

**Solve the following quadratics by FACTORING:**

3.  $x^2 = 7x + 18$

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

5.  $2x^3 - 7x = 13x^2$

6.  $-4x = 25x^3 + 20x^2$

**Solve the following quadratics by COMPLETING THE SQUARE:**

7.  $x^2 + 12x + 39 = 0$

8.  $3x^2 = 21x + 9$

Solve the following for x:

9.  $\frac{2}{3}x^2 + 18 = 0$

10.  $16x^2 - 7 = 42$

Factor each of the following completely:

11.  $16x^{10} - 4y^{16}$

12.  $3x^4 - 15x^3 - 150x^2$

13.  $15x^2 - 100x + 60$

14.  $24x^2 - 30x - 9$

Simplify the following:

15.  $\frac{\sqrt[3]{15x^8}}{\sqrt{80x^2}}$

16.  $\frac{\sqrt{x^9}}{(x^5)^{\frac{1}{3}}}$

17.  $\frac{6-4i}{3+i}$

18.  $-5i^{51}\sqrt{-4}$