

Unit 1 (6.2) Alg2 Finding Zeros Practice

Key
No work

- Use your calculator to find all of the real zero(s).
- Use synthetic division with the real zero(s) to get a depressed polynomial of degree 2.
- Find the remaining roots without using a graphing calculator.

1. $f(x) = x^3 + 5x^2 + 11x + 15$

$x = -3$

$x = \frac{-2 \pm 4i}{2}$ or $-1 \pm 2i$

2. $g(x) = x^3 - 10x^2 + 18x - 4$

$x = 2$

$x = \frac{8 \pm 2\sqrt{14}}{2}$ or $4 \pm \sqrt{14}$

3. $h(x) = 6x^4 - 17x^3 + 8x^2 + 8x - 3$

$x = 1.5$

$x = \frac{1}{3}$

$x = \frac{6 \pm 6\sqrt{5}}{12}$ or $\frac{1 \pm \sqrt{5}}{2}$

4. $m(x) = x^4 + 4x^3 + 5x^2 + 4x + 4$

$x = -2$

$x = -2$

$x = \pm i$

5. $t(x) = 4x^4 + 5x^3 + 30x^2 + 45x - 54$

$x = -2$

$x = .75$

$x = \pm 3i$

- Use your calculator to find all of the real zero(s).
- Use synthetic division with the real zero(s) to get a depressed polynomial of degree 2.
- Find the remaining roots without using a graphing calculator.

6. $p(x) = x^3 - 3x^2 + 2$

$$x = 1$$

$$x = \frac{2 \pm 2\sqrt{3}}{2} \text{ or } 1 \pm \sqrt{3}$$

7. $f(x) = 6x^3 - 25x^2 + 2x + 8$

$$x = 4$$

$$x = \frac{2}{3}$$

$$x = -\frac{1}{2}$$

8. $g(x) = 5x^3 - x^2 - 18x + 8$

$$x = -2$$

$$x = \frac{11 \pm \sqrt{41}}{10}$$

9. $h(x) = x^4 - 2x^3 - 9x^2 + 10x - 24$

$$x = -3$$

$$x = 4$$

$$x = \frac{1 \pm i\sqrt{7}}{2}$$

10. $m(x) = 2x^4 + 5x^3 - 18x^2 - 19x + 42$

$$x = -2$$

$$x = 1.5$$

$$x = \frac{-4 \pm 8\sqrt{2}}{4} \text{ or } -1 \pm 2\sqrt{2}$$