

7.2 review

Date _____ Period _____

State the possible rational zeros for each function. Then find all zeros.

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

2) $f(x) = x^3 + 6x^2 + 21x + 26$

3) $f(x) = 3x^3 - 8x^2 + 5x - 2$

4) $f(x) = x^3 + 5x^2 + 7x + 3$

5) $f(x) = x^3 - 2x^2 - 18x - 20$

6) $f(x) = x^4 + x^2 - 6$

7) $f(x) = x^4 - 5x^2 + 6$

8) $f(x) = x^4 - 81$

9) $f(x) = 5x^3 + 2x^2 + 20x + 8$

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

11) $f(x) = 5x^3 + 3x^2 + 25x + 15$

12) $f(x) = 3x^3 - 2x^2 - 6x + 4$

13) $f(x) = x^3 - 125$

14) $f(x) = x^3 + 1$

Answers to 7.2 review (ID: 1)

- 1) Possible rational zeros: $\pm 1, \pm 7$
Zeros: $\{7, -1, 1\}$
- 2) Possible rational zeros: $\pm 1, \pm 2, \pm 13, \pm 26$
Zeros: $\{-2, -2 + 3i, -2 - 3i\}$
- 3) Possible rational zeros: $\pm 1, \pm 2, \pm \frac{1}{3}, \pm \frac{2}{3}$
Zeros: $\left\{2, \frac{1 + i\sqrt{2}}{3}, \frac{1 - i\sqrt{2}}{3}\right\}$
- 4) Possible rational zeros: $\pm 1, \pm 3$
Zeros: $\{-3, -1 \text{ mult. } 2\}$
- 5) Possible rational zeros:
 $\pm 1, \pm 2, \pm 4, \pm 5, \pm 10, \pm 20$
Zeros: $\{-2, 2 + \sqrt{14}, 2 - \sqrt{14}\}$
- 6) Possible rational zeros: $\pm 1, \pm 2, \pm 3, \pm 6$
Zeros: $\{\sqrt{2}, -\sqrt{2}, i\sqrt{3}, -i\sqrt{3}\}$
- 7) Possible rational zeros: $\pm 1, \pm 2, \pm 3, \pm 6$
Zeros: $\{\sqrt{3}, -\sqrt{3}, \sqrt{2}, -\sqrt{2}\}$
- 8) Possible rational zeros:
 $\pm 1, \pm 3, \pm 9, \pm 27, \pm 81$
Zeros: $\{3i, -3i, 3, -3\}$
- 9) Possible rational zeros:
 $\pm 1, \pm 2, \pm 4, \pm 8, \pm \frac{1}{5}, \pm \frac{2}{5}, \pm \frac{4}{5}, \pm \frac{8}{5}$
Zeros: $\left\{-\frac{2}{5}, 2i, -2i\right\}$
- 10) Possible rational zeros: $\pm 1, \pm \frac{1}{2}, \pm \frac{1}{4}$
Zeros: $\left\{-\frac{1}{4}, i, -i\right\}$
- 11) Possible rational zeros:
 $\pm 1, \pm 3, \pm 5, \pm 15, \pm \frac{1}{5}, \pm \frac{3}{5}$
Zeros: $\left\{-\frac{3}{5}, i\sqrt{5}, -i\sqrt{5}\right\}$
- 12) Possible rational zeros:
 $\pm 1, \pm 2, \pm 4, \pm \frac{1}{3}, \pm \frac{2}{3}, \pm \frac{4}{3}$
Zeros: $\left\{\frac{2}{3}, \sqrt{2}, -\sqrt{2}\right\}$
- 13) Possible rational zeros: $\pm 1, \pm 5, \pm 25, \pm 125$
Zeros: $\left\{5, \frac{-5 + 5i\sqrt{3}}{2}, \frac{-5 - 5i\sqrt{3}}{2}\right\}$
- 14) Possible rational zeros: ± 1
Zeros: $\left\{-1, \frac{1 + i\sqrt{3}}{2}, \frac{1 - i\sqrt{3}}{2}\right\}$