

These questions are based on the MATH 1310 textbook. Please place your answers in the casa.uh.edu website under the EMCF tab for Homework 3.

1. Section 4.1, Question 12

Choices are listed in the Textbook

2. Section 4.1, Question 50

- a. x int: (2,0),(5,0) y int: (0,20)
b. x int: (-2,0),(2,0),(5,0) y int: (0,20)
c. x int: (-5,0),(-2,0),(2,0) y int: (0,20)
d. x int: (-2,0),(2,0),(5,0) y int: (0,-20)

3. Section 4.2, Question 10

- a. $Q(x) = 3x^3 + 2x^2 + 10x + 6$ $R(x) = 12x - 1$
b. $Q(x) = 3x^3 - 6x^2 + 8x + 5$ $R(x) = 0$
c. $Q(x) = 3x^3 + 6x^2 - 16x + 32$ $R(x) = -76x + 5$
d. $Q(x) = 3x^3 + 6x^2 + 8x + 16$ $R(x) = 30x + 7$

4. Section 4.2, Question 18:

- a. $Q(x) = 2x^3 - x^2 - 16x - 37$ $R(x) = -86$
b. $Q(x) = 2x^3 + 7x^2 - 4x - 3$ $R(x) = -18$
c. $Q(x) = 2x^3 - 7x^2 + 6x - 3$ $R(x) = 102$
d. $Q(x) = 2x^3 + 7x^2 + 2x + 1$ $R(x) = 0$

5. Section 4.3, Question 42b

- a. $P(x) = (9x + 2)(9x - 2)(x - 5)$
b. $P(x) = (3 + 2i)(3 - 2i)(x - 5)$
c. $P(x) = (3 + 4i)(3 - 4i)(x - 5)$
d. $P(x) = -(3 + 4i)(x - 5)$

6. Section 4.4, Question 18 (Give all characteristics)

- a. VA: $x = -2$; Hole: at $x = 2$; HA: $y = 1.6$; x-int: $(0,0)$; y-int: $(0,0)$
- b. VA: $x = \pm 2$; Hole: None; HA: $y = 0$; x-int: $(0,0), (2,0)$; y-int: $(0,0)$
- c. VA: $x = -2$; Hole: at $x = 2$; HA: None; x-int: $(0,0), (2,0)$; y-int: $(0,0)$
- d. VA: $x = 2$; Hole: at $x = -2$; HA: $y = 1.6$; x-int: $(2,0)$; y-int: $(0,0)$

7. Section 5.1, Question 46

- a. $f(x) = 18^x$
- b. $f(x) = 3(6)^x$
- c. $f(x) = 3(36)^x$
- d. $f(x) = 9^x$

8. Section 5.3, Question 24

- a. (a) 2 (b) -1
- b. (a) $\frac{1}{2}$ (b) -1
- c. (a) $\frac{1}{2}$ (b) $\frac{1}{3}$
- d. (a) -2 (b) $\frac{1}{3}$

9. Section 5.4, Question 36

- a. $\frac{3}{2} \log(x+2) - \frac{1}{2} \log(x^3-5) + 2 \log(x+7)$
- b. $\frac{3}{2} \log(x+2) - \log(x^3-5) - 4 \log(x+7)$
- c. $\frac{3}{2} \log(x+2) - \frac{3}{2} \log(x-5) - 2 \log(x+7)$
- d. $\frac{3}{2} \log(x+2) - \frac{1}{2} \log(x^3-5) - 2 \log(x+7)$

10. Section 5.5, Question 48

a. $x = 0$, and $x = -5$

b. $x = \frac{-5 + \sqrt{41}}{2}$

c. $x = 0$

d. No Solution