AUC PreCalculus

Assignment 37.

The deadline for all homework assignments is the one specified in Archie before 11:59 pm. As discussed in class, It must be correctly uploaded in order to be graded. Show all your work and justifications.

For Exercises 47–50, use the remainder theorem to evaluate the polynomial for the given values of x.

47. $f(x) = 2x^4 + x^3 - 49x^2 + 79x + 15$

a. $f(-1)$ −112 **b.** $f(3)$ 0 **c.** $f(4)$ 123 **d.** $f\left(\frac{5}{2}\right)$ 0

49. $h(x) = 5x^3 - 4x^2 - 15x + 12$

a. $h(1)$ −2 **b.** $h\left(\frac{4}{5}\right)$ 0 **c.** $h(\sqrt{3})$ 0 **d.** $h(-1)$ 18

48. $g(x) = 3x^4 - 22x^3 + 51x^2 - 42x + 8$

a. $g(-1)$ 126 **b.** $g(2)$ 0 **c.** $g(1)$ −2 **d.** $g\left(\frac{4}{3}\right)$ 0

50. $k(x) = 2x^3 - x^2 - 14x + 7$

a. $k(2)$ −9 **b.** $k\left(\frac{1}{2}\right)$ 0 **c.** $k(\sqrt{7})$ 0 **d.** $k(-2)$ 15

For Exercises 51–58, use the remainder theorem to determine if the given number c is a zero of the polynomial.

51. $f(x) = x^4 + 3x^3 - 7x^2 + 13x - 10$

a. $c = 2$ No **b.** $c = -5$ Yes

53. $p(x) = 2x^3 + 3x^2 - 22x - 33$

a. $c = -2$ No **b.** $c = -\sqrt{11}$ Yes

52. $g(x) = 2x^4 + 13x^3 - 10x^2 - 19x + 14$

a. $c = -2$ No **b.** $c = -7$ Yes

54. $q(x) = 3x^3 + x^2 - 30x - 10$

a. $c = -3$ No **b.** $c = -\sqrt{10}$ Yes

55. $m(x) = x^3 - 2x^2 + 25x - 50$

a. $c = 5i$ Yes **b.** $c = -5i$ Yes

57. $g(x) = x^3 - 11x^2 + 25x + 37$

a. $c = 6 + i$ Yes **b.** $c = 6 - i$ Yes

56. $n(x) = x^3 + 4x^2 + 9x + 36$

a. $c = 3i$ Yes **b.** $c = -3i$ Yes

58. $f(x) = 2x^3 - 5x^2 + 54x - 26$

a. $c = 1 + 5i$ Yes **b.** $c = 1 - 5i$ Yes