

Answers for Lesson 6-3 Exercises

1. $x - 8$
2. $3x - 5$
3. $x^2 + 4x + 3$, R 5
4. $2x^2 + 5x + 2$
5. $3x^2 - 7x + 2$
6. $9x - 12$, R -32
7. $x - 10$, R 40
8. $x^2 + 4x + 3$
9. no
10. yes
11. yes
12. no
13. $x^2 + 4x + 3$
14. $x^2 - 2x + 2$
15. $x^2 - 11x + 37$, R -128
16. $x^2 + 2x + 5$
17. $x^2 - x - 6$
18. $-2x^2 + 9x - 19$, R 40
19. $x + 1$, R 4
20. $3x^2 + 8x - 3$
21. $x^2 - 3x + 9$
22. $6x - 2$, R -4
23. $y = (x + 1)(x + 3)(x - 2)$
24. $y = (x + 3)(x - 4)(x - 3)$
25. $\ell = x + 3$ and $h = x$
26. 18
27. 0
28. 0
29. 12
30. 168
31. 10
32. 51
33. 0
34. $P(a) = 0$; $x - a$ is a factor of $P(x)$.
35. $x - 1$ is not a factor of $x^3 - x^2 - 2x$ because it does not divide into $x^3 - x^2 - 2x$ evenly.
36. Answers may vary. Sample: $(x^2 + x - 4) \div (x - 2)$
37. $x^2 + 4x + 5$
38. $x^3 - 3x^2 + 12x - 35$, R 109
39. $x^4 - x^3 + x^2 - x + 1$
40. $x + 4$
41. $x^3 - x^2 + 1$
42. no
43. yes
44. yes
45. no
46. no

Answers for Lesson 6-3 Exercises (cont.)

47. yes 48. yes 49. yes 50. no

51. no

52. $x^3 - x^2 + 1$

53. $x^3 - 2x^2 - 2x + 4$, R -35

54. $x^3 - 2x^2 - x + 6$

55. $x^3 - 4x^2 + x$

56. a. $x + 1$

b. $x^2 + x + 1$

c. $x^3 + x^2 + x + 1$

d. $(x - 1)(x^4 + x^3 + x^2 + x + 1)$

57. a. $x^2 - x + 1$

b. $x^4 - x^3 + x^2 - x + 1$

c. $x^6 - x^5 + x^4 - x^3 + x^2 - x + 1$

d. $(x + 1)(x^8 - x^7 + x^6 - x^5 + x^4 - x^3 + x^2 - x + 1)$

58. By dividing it by a polynomial of degree 1, you are reducing the degree- n polynomial by one, to $n - 1$. The remainder will be constant because it is not divisible by the variable.

59. $x + 2i$

60. Yes; the graph could rise to the right and fall to the left or it could fall to the right and rise to the left.

