

pg. 169 (1-6, 7, 9, 13-18, 23, 29, 30, 39, 43)

1. no, rational function
2. yes, Degree: 1, LC: 2
3. yes, Degree: 5, LC: 2
4. yes, Degree: 0, LC: 0
5. no, cube root function
6. yes, Degree: 2, LC: -5

7. $(-5, -1), (2, 4) \rightarrow m = \frac{4+1}{2+5} = \frac{5}{7}$

$$y = \frac{5}{7}x + b$$

$$-1 = \frac{5}{7}(-5) + b$$

$$-1 = -\frac{25}{7} + b$$

$$\frac{18}{7} = b$$

$$\rightarrow \boxed{y = \frac{5}{7}x + \frac{18}{7}}$$

9. $(-4, 6), (-1, 2) \rightarrow m = \frac{2-6}{-1+4} = \frac{-4}{3} =$

$$y = -\frac{4}{3}x + b$$

$$6 = -\frac{4}{3}(-4) + b$$

$$6 = \frac{16}{3} + b$$

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

$$\rightarrow \boxed{y = -\frac{4}{3}x + \frac{2}{3}}$$

13. A

23.) $v: (1, 5) \quad \text{axis: } x=1$

14. D

29.) $f(x) = 8x - x^2 + 3 \rightarrow -x^2 + 8x + 3$

15. B

$$x = \frac{-8}{2(-1)} = 4 \rightarrow -(4)^2 + 8(4) + 3 = 19$$

16. F

$v: (4, 19) \quad \text{axis: } x=4$

17. E

$$f(x) = -1(x-4)^2 + 19$$

18. C

30.) $v: (\frac{1}{4}, \frac{23}{4}) \quad \text{axis: } x = \frac{1}{4}$

$$f(x) = 4(x - \frac{1}{4})^2 + \frac{23}{4}$$

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

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