27. $\dfrac{256x^7}{y^{14}}, x \neq 0$

28. $\dfrac{2}{3y^3}, x \neq 0, z \neq 0$

29. $2, x \neq -2, x \neq 0, x \neq 3$

30. $3, x \neq 0, x \neq 1, x \neq 6$

31. $\dfrac{(x + 2)}{(x + 4)(x - 3)}$

32. $\dfrac{(x + 4)}{(x + 2)(x - 9)}$

33. $\dfrac{(x + 6)(x - 2)}{(x + 2)(x - 6)}, x \neq -4, x \neq -3$

34. $\dfrac{(x - 8)(x + 2)}{(x - 2)(x + 8)}, x \neq -10, x \neq -5, x \neq -2$

35. a. $\dfrac{2(r + h)}{rh}$

    b. soup: about 0.784, coffee: about 0.382, paint: about 0.341
From most efficient to least efficient, paint can, coffee can, and soup can.

36. a. original tin: $\dfrac{2s + 4h}{hs}$, new tin: $\dfrac{s + 4h}{hs}$

    b. yes; The efficiency ratio of the new tin is smaller than the original tin.

37. $M = \dfrac{171{,}000t + 1{,}361{,}000}{(1 + 0.018t)(2.96t + 278.649)}; \$8443$

38. $M = \dfrac{17{,}913t + 709{,}569}{(1 - 0.028t)(0.5906t + 70.219)}; \$14{,}665$