

Practise, Apply, Solve 4.8, page 353

1. (a) $x \neq 1$ (b) $y \neq \frac{1}{2}$ (c) $m, n \neq 0$
 (d) $x \neq 0, 3$ (e) $p \neq -2, 4$ (f) $a \neq -b$
 (g) $m \neq -3, 0$ (h) $x \neq \frac{3}{2}$ (i) $a \neq -\frac{4}{3}, 0$
 (j) $k \neq \pm \frac{3}{2}$
2. (a) $4(x + 3)$ (b) $5(x + 3)$ (c) $\frac{4}{5}, x \neq -3$
3. (a), (c), (d)
4. (a) 1 (b) -1 (c) 1
 (d) 1 (e) 1 (f) -1
5. (a) $\frac{1}{x+5}, x \neq -5, 2$ (b) $\frac{4y}{3y+4}, y \neq \pm \frac{4}{3}$
 (c) $\frac{3x+5}{2x+1}, x \neq -\frac{1}{2}, x \neq 1$
6. (a) $(k+2)(k-2)$ (b) $(3k-1)(k+2)$
 (c) $\frac{k-2}{3k-1}, x \neq -2, x \neq \frac{1}{3}$
7. (a) $6(p+2)(p+3)$ (b) $3(p+2)(p-3)$
 (c) $\frac{2(p+3)}{p-3}, x \neq -2, 3$
8. (a) $\frac{2}{5}, b \neq -4$ (b) $\frac{3x-2}{3x-6}, x \neq 0, 2$
 (c) $\frac{1}{3}, m \neq 0, 4$ (d) $-5, x \neq 0, 3$
 (e) $\frac{x+2}{x-3}, x \neq 2, 3$ (f) $\frac{p+4}{3}, p \neq 5$
 (g) $\frac{y-3}{y+3}, y \neq -3, y \neq 4$ (h) $\frac{a+5}{a-7}, a \neq 4, 7$

9. (a) $\frac{9x}{-4y}, x \neq 0, y \neq 0$ (b) $\frac{3}{2}, x \neq -4$
 (c) $\frac{3m+2}{3m+1}, m \neq -\frac{1}{3}, \frac{2}{3}$ (d) $\frac{x-5y}{x+5y}, x \neq -5y$
 (e) $\frac{3m+2}{2m+2}, m \neq \pm 1$ (f) $\frac{a+3}{a-3}, a \neq \frac{1}{2}, 3$
 (g) $\frac{-2(3x+4)}{3x+2}, x \neq -\frac{2}{3}, \frac{5}{3}$ (h) $\frac{3x-1}{x(3x+1)}, x \neq -\frac{1}{3}, 0$
11. Restrictions express the values for which a rational expression is not defined.
12. (a) $x - y = -(y - x)$ (b) $\frac{-(x+2y)}{x+y}, x \neq \pm y$
13. (a) $-2a - b, b \neq 2a$ (b) $1 - x, x \neq 1$
 (c) $\frac{5-k}{5+k}, k \neq \pm 5$
14. (a) 20.83 mg and 0.08 mg (b) 17.36 mg and 0.05 mg
15. $\frac{\text{Surface Area}}{\text{Volume}} = \frac{2(r+h)}{rh}$
 By symmetry, a change in height or radius has equal effect on the ratio.
16. No, should be $\frac{a+5b}{2a+b}$.
17. all x except $-\frac{3}{4}, 0, \frac{1}{2}$, and 4
18. Drug B would need to be taken more.