Exercises [A-2]

1. Write the set of values of x for which $\frac{x}{12} > \frac{5}{3}$.

2. Write the set of values of x for which $\frac{4}{x} < \frac{5}{3}$.

3. If $n > 0$, which is the larger number, $\frac{100}{2n}$ or $\frac{120}{3n}$?

4. If $n > 0$, which is the larger number, $\frac{180}{n+8}$ or $\frac{180}{n}$?

In exercises 5–11 select the correct result from (a), (b), (c).

5. (a) $\frac{100p}{100q} > \frac{p}{q}$; (b) $\frac{100p}{100q} = \frac{p}{q}$; (c) $\frac{100p}{100q} < \frac{p}{q}$.

6. (a) $\frac{5+n^2}{2+n^2} > \frac{5}{2}$; (b) $\frac{5+n^2}{2+n^2} = \frac{5}{2}$; (c) $\frac{5+n^2}{2+n^2} < \frac{5}{2}$.

7. $\frac{a^2-ab}{b^2-ab}$ may be reduced to: (a) $\frac{a^2}{b^2}$; (b) $-\frac{a}{b}$; (c) $\frac{a^2-1}{b^2-1}$.

8. $\frac{xy+x^2}{xy}$ may be reduced to: (a) x^2; (b) $1+x^2$; (c) $1+\frac{x}{y}$.

9. $(1-x)(2-x)$ is identical with:
(a) $(x-1)(x-2)$; (b) $(x+1)(x+2)$; (c) $-(x-1)(x-2)$.

10. $(y-n)^3$ is identical with: (a) $(n-y)^3$; (b) $(n+y)^3$; (c) $-(n-y)^3$.

11. $2-x-x^2$ is identical with:
(a) $2+x+x^2$; (b) x^2+x-2; (c) $-(x^2+x-2)$.

Express each of the following fractions in lowest terms.

12. (a) $\frac{x-1}{x-x^2}$ (b) $\frac{1-n^2}{(1-n)^2}$ (c) $\frac{(p-1)(p+1)}{(1-p)(1+p)}$

13. (a) $\frac{3+2z-z^2}{2z-6}$ (b) $\frac{x^2-8x+12}{4-4x+x^2}$

14. (a) $\frac{t^3-1}{(1-t)^3}$ (b) $\frac{6x^3-2x^2-3x+1}{1-x-6x^2}$

Rewrite the following so that all fractions in a group have the same denominator, selecting the least possible quantity for this denominator.

15. $\frac{2}{t}, \frac{4}{12t}, \frac{3t}{t^3}$

16. $\frac{a}{b}, \frac{b}{a}, \frac{a-b}{a+b}$

17. $\frac{1}{2a-2b}, \frac{2}{3a+3b}, \frac{ab}{2b^2-2a^2}$

18. $\frac{4}{2a-2}, \frac{a}{(1-a)^2}, \frac{3a^2}{(a-1)^3}$

1. $\{x|x > 20\}$
2. $\{x|x < 0\} \cup \{x|x > 2.4\}$
3. $\frac{100}{2n}$
4. $\frac{180}{n}$
5. (b)
6. (c)
7. (b)
8. (c)
9. (a)
10. (c)
11. (c)
12. a. $-\frac{1}{x}$
    b. $\frac{1+n}{1-n}$
    c. -1
13. a. $-\frac{1+z}{2}$
    b. $\frac{x-6}{x-2}$
14. a. $-\frac{t^2+t+1}{(t-1)^2}$
    b. $\frac{1-2x^2}{1+2x}$
15. $\frac{6t}{3t^2}$ $\frac{t}{3t^2}$, $\frac{9}{3t^2}$
16. $\frac{a^2(a+b)}{ab(a+b)}$, $\frac{b^2(a+b)}{ab(a+b)}$, $\frac{ab(a-b)}{ab(a+b)}$
17. $\frac{3a+3b}{6(a+b)(a-b)}$, $\frac{4a-4b}{6(a+b)(a-b)}$, $\frac{-3ab}{6(a+b)(a-b)}$
18. $\frac{2(a-1)^2}{(a-1)^3}$, $\frac{a(a-1)}{(a-1)^3}$, $\frac{3a^2}{(a-1)^3}$