## Exercises [A-1]

Simplify:

1. $\dfrac{\frac{1}{3}+\frac{1}{4}}{1-\frac{1}{6}}$

2. $\dfrac{\frac{3}{4}+\frac{2}{5}}{\frac{3}{4}-\frac{2}{5}}$

3. $\dfrac{0.7+0.2}{1-0.25}$

4. $\dfrac{\frac{3}{2}+\frac{1}{5}}{1-(\frac{3}{2})(\frac{1}{5})}$

5. $\dfrac{2(\frac{5}{4})}{1-(\frac{5}{4})^2}$

6. $\dfrac{2(\frac{4}{3})}{1+(\frac{4}{3})^2}$

7. $\dfrac{\frac{1}{a}-\frac{1}{2a}}{\frac{2}{a}}$

8. $\dfrac{\frac{3x}{2}+1}{\frac{3x}{4}-\frac{1}{3x}}$

9. $\dfrac{x-\frac{4y^2}{x}}{x+2y}$

10. $\dfrac{a+\frac{ab}{a-b}}{a-\frac{ab}{a+b}}$

11. $\dfrac{1+\frac{2x}{x^2+1}}{1-\frac{2(x+2)}{x^2+1}}$

12. $\dfrac{\frac{c}{c+d}+\frac{d}{c-d}}{\frac{c}{c-d}-\frac{d}{c+d}}$

13. $\dfrac{\frac{a}{x-a}+\frac{x}{x+a}}{\frac{x+a}{x}-\frac{2a}{x+a}}$



14. $\left(1+\dfrac{1}{1-p}\right)\cdot\left(\dfrac{1}{p-2}+1\right)$

15. $\left(1+\dfrac{3y+1}{9-y^2}\right)\cdot\left(1+\dfrac{8}{y-5}\right)$

16. $\left(\dfrac{1}{2x-2}-\dfrac{1}{x}\right)\cdot\left(\dfrac{x}{2}+\dfrac{\frac{1}{2}x}{x-2}\right)$

17. $\left(\dfrac{3}{x-3}+\dfrac{2}{x^2-4x+3}\right)\cdot\left(1+\dfrac{5+x}{1-3x}\right)$

18. $\left(\dfrac{1}{a(a+1)}-\dfrac{1}{a(1-a)}\right)\div\left(\dfrac{1}{a^2-1}-\dfrac{1}{1+a^2}\right)$

Pages 92-93

1. $\frac{7}{10}$
2. $3\frac{2}{7}$
3. 1.2
4. $2\frac{3}{7}$
5. $-4\frac{4}{9}$
6. $\frac{24}{25}$
7. $\frac{1}{4}$
8. $\frac{6x}{3x-2}$
9. $\frac{x-2y}{x}$
10. $\frac{a+b}{a-b}$
11. $\frac{x+1}{x-3}$
12. 1
13. $\frac{x}{x-a}$
14. 1
15. $\frac{y+2}{y-3}$
16. $-\frac{1}{4}$
17. $\frac{2}{x-1}$
18. $a^3+1$

## Exercises [A-2]

Simplify:

1. $\dfrac{\frac{2}{3}-\frac{1}{2}}{\frac{2}{3}+\frac{1}{2}}$

2. $\dfrac{0.7-0.2}{1+0.25}$

3. $\dfrac{2(\frac{4}{3})}{1-(\frac{4}{3})^2}$

4. $\dfrac{1+\dfrac{1}{a}}{1-\dfrac{1}{a^2}}$

5. $\dfrac{x-\dfrac{1}{2x+1}}{1-\dfrac{2}{2x+1}}$

6. $\dfrac{\dfrac{1}{2x-2}-\dfrac{1}{x}}{\dfrac{2}{x}-\dfrac{1}{x-1}}$

7. $\dfrac{\dfrac{x}{y}-\dfrac{x-y}{x+y}}{\dfrac{y}{x}+\dfrac{x-y}{x+y}}$

8. $\dfrac{1-\dfrac{1}{3y}}{1+3y}+\dfrac{1+\dfrac{1}{3y}}{1-3y}$

9. $\left(\dfrac{1}{x+y}-\dfrac{1}{x-y}\right)\left(\dfrac{1}{x}-\dfrac{1}{y}\right)$

10. $\left(\dfrac{x}{x-y}-2\right)\left(\dfrac{y^2}{x-2y}-x\right)$

11. $\dfrac{6\left(\dfrac{3x-1}{2}-\dfrac{4x-3}{3}\right)}{1+\dfrac{3}{x}}$

12. $\dfrac{4+\dfrac{1}{x+1}}{16-\dfrac{1}{(x+1)^2}}$

13. $\left(1-\dfrac{1}{1-a}\right)\left(1-\dfrac{(a+1)^2}{4a}\right)$

14. $\dfrac{n+2-\dfrac{5}{n-2}}{1-\dfrac{1}{(n-2)^2}}$

15. $\dfrac{2+\dfrac{x-2}{1-x^2}}{2-\dfrac{3}{x+1}}$

16. $\left(\dfrac{x}{4-x^2}+\dfrac{1}{x-2}\right)\div\left(1-\dfrac{2}{2+x}\right)$

17. $\left(\dfrac{1}{x^2-3x+2}-\dfrac{2}{x^2-1}\right)\left(x+\dfrac{2(2x-1)}{x-5}\right)$

18. $\left(\dfrac{a}{3}-\dfrac{2x^2}{3a-3x}\right)\div\left(a-\dfrac{x(a-4x)}{x-a}\right)$

Page 93

1. $\frac{1}{7}$

2. 0.4

3. $-\frac{24}{7}$

4. $\frac{a}{a-1}$

5. $x+1$

6. $-\frac{1}{2}$

7. $\frac{x}{y}$

8. $\frac{4}{(1+3y)(1-3y)}$

9. $\frac{2}{x(x+y)}$

10. $\frac{x^2-2xy-y^2}{x-y}$

11. $x$

12. $\frac{x+1}{4x+3}$

13. $\frac{1-a}{4}$, or $-\frac{a-1}{4}$

14. $\frac{(n+3)(n-2)}{n-1}$

15. $\frac{x}{x-1}$

16. $\frac{2}{x(x-2)}$

17. $\frac{1}{1-x}$, or $\frac{-1}{x-1}$

18. $\frac{x+a}{3(2x+a)}$