

## Multiplying Rational Expressions

**Simplify each expression.**

1)  $\frac{59n}{99} \cdot \frac{80}{33n}$

2)  $\frac{53}{43} \cdot \frac{46n^2}{31}$

3)  $\frac{93}{21n} \cdot \frac{34n}{51n}$

4)  $\frac{79n}{25} \cdot \frac{85}{27n^2}$

5)  $\frac{96}{38n} \cdot \frac{25}{45}$

6)  $\frac{84}{3} \cdot \frac{48x}{95}$

7)  $\frac{6(r+2)}{20} \cdot \frac{4r}{6(r+2)}$

8)  $\frac{7n^2(n+4)}{(n-3)(n+4)} \cdot \frac{n-3}{(n+8)(n+6)}$

9)  $\frac{2(p+6)}{4} \cdot \frac{p-3}{2(p-3)}$

10)  $\frac{9(r+4)}{r+4} \cdot \frac{9r}{9(r-5)}$

11)  $\frac{8(m+1)}{7m} \cdot \frac{9}{8(m+1)}$

12)  $\frac{(p+6)(p-4)}{p-4} \cdot \frac{1}{(p-4)(p-2)}$

13)  $\frac{1}{v+10} \cdot \frac{10v+30}{v+3}$

14)  $\frac{7n}{24n^3 - 64n^2} \cdot \frac{9n-24}{7n}$

15) 
$$\frac{x+7}{7x+35} \cdot \frac{x^2-3x-40}{x-8}$$

16) 
$$\frac{20a^2-100a}{a-1} \cdot \frac{1}{16a^3-80a^2}$$

17) 
$$\frac{3b^2+18b}{b+6} \cdot \frac{1}{b+8}$$

18) 
$$\frac{p+7}{p-10} \cdot \frac{p+2}{7p+14}$$

19) 
$$\frac{21x^2-21x}{18x^2-18x} \cdot \frac{6x}{6x^2}$$

20) 
$$\frac{1}{p-9} \cdot \frac{p^2+6p-27}{p+9}$$

21) 
$$\frac{v-7}{v+6} \cdot \frac{10v+60}{v-7}$$

22) 
$$\frac{5r+50}{r+10} \cdot \frac{r-2}{5}$$

23) 
$$\frac{x^2-10x+25}{10x-100} \cdot \frac{x-10}{45-9x}$$

24) 
$$\frac{45x^2}{x-9} \cdot \frac{x^2-5x-36}{3x^3+12x^2}$$

25) 
$$\frac{8v-56}{8v+48} \cdot \frac{v^2+9v+18}{8v^2+24v}$$

26) 
$$\frac{9r^3-54r^2}{9r^2+45r} \cdot \frac{9r^2+9r}{9r^3-54r^2}$$

27) 
$$\frac{m+1}{3m-15} \cdot \frac{8m-80}{m^2-9m-10}$$

28) 
$$\frac{6n+6}{n+9} \cdot \frac{n^2+6n-27}{6n+6}$$

## Multiplying Rational Expressions

Simplify each expression.

1)  $\frac{59n}{99} \cdot \frac{80}{33n}$

$$\frac{4720}{3267}$$

2)  $\frac{53}{43} \cdot \frac{46n^2}{31}$

$$\frac{2438n^2}{1333}$$

3)  $\frac{93}{21n} \cdot \frac{34n}{51n}$

$$\frac{62}{21n}$$

4)  $\frac{79n}{25} \cdot \frac{85}{27n^2}$

$$\frac{1343}{135n}$$

5)  $\frac{96}{38n} \cdot \frac{25}{45}$

$$\frac{80}{57n}$$

6)  $\frac{84}{3} \cdot \frac{48x}{95}$

$$\frac{1344x}{95}$$

7)  $\frac{6(r+2)}{20} \cdot \frac{4r}{6(r+2)}$

$$\frac{r}{5}$$

8)  $\frac{7n^2(n+4)}{(n-3)(n+4)} \cdot \frac{n-3}{(n+8)(n+6)}$

$$\frac{7n^2}{(n+8)(n+6)}$$

9)  $\frac{2(p+6)}{4} \cdot \frac{p-3}{2(p-3)}$

$$\frac{p+6}{4}$$

10)  $\frac{9(r+4)}{r+4} \cdot \frac{9r}{9(r-5)}$

$$\frac{9r}{r-5}$$

11)  $\frac{8(m+1)}{7m} \cdot \frac{9}{8(m+1)}$

$$\frac{9}{7m}$$

12)  $\frac{(p+6)(p-4)}{p-4} \cdot \frac{1}{(p-4)(p-2)}$

$$\frac{p+6}{(p-4)(p-2)}$$

13)  $\frac{1}{v+10} \cdot \frac{10v+30}{v+3}$

$$\frac{10}{v+10}$$

14)  $\frac{7n}{24n^3 - 64n^2} \cdot \frac{9n-24}{7n}$

$$\frac{3}{8n^2}$$

$$15) \frac{x+7}{7x+35} \cdot \frac{x^2-3x-40}{x-8}$$

$$\frac{x+7}{7}$$

$$16) \frac{20a^2-100a}{a-1} \cdot \frac{1}{16a^3-80a^2}$$

$$\frac{5}{4a(a-1)}$$

$$17) \frac{3b^2+18b}{b+6} \cdot \frac{1}{b+8}$$

$$\frac{3b}{b+8}$$

$$18) \frac{p+7}{p-10} \cdot \frac{p+2}{7p+14}$$

$$\frac{p+7}{7(p-10)}$$

$$19) \frac{21x^2-21x}{18x^2-18x} \cdot \frac{6x}{6x^2}$$

$$\frac{7}{6x}$$

$$20) \frac{1}{p-9} \cdot \frac{p^2+6p-27}{p+9}$$

$$\frac{p-3}{p-9}$$

$$21) \frac{v-7}{v+6} \cdot \frac{10v+60}{v-7}$$

$$10$$

$$22) \frac{5r+50}{r+10} \cdot \frac{r-2}{5}$$

$$r-2$$

$$23) \frac{x^2-10x+25}{10x-100} \cdot \frac{x-10}{45-9x}$$

$$-\frac{(x-5)}{90}$$

$$24) \frac{45x^2}{x-9} \cdot \frac{x^2-5x-36}{3x^3+12x^2}$$

$$15$$

$$25) \frac{8v-56}{8v+48} \cdot \frac{v^2+9v+18}{8v^2+24v}$$

$$\frac{v-7}{8v}$$

$$26) \frac{9r^3-54r^2}{9r^2+45r} \cdot \frac{9r^2+9r}{9r^3-54r^2}$$

$$\frac{r+1}{r+5}$$

$$27) \frac{m+1}{3m-15} \cdot \frac{8m-80}{m^2-9m-10}$$

$$\frac{8}{3(m-5)}$$

$$28) \frac{6n+6}{n+9} \cdot \frac{n^2+6n-27}{6n+6}$$

$$n-3$$