Algebra 2

MULTIPLYING RATIONALS: Simplify each expression.

1) $\frac{10}{5x} \cdot \frac{7}{2x^4}$

2) $\frac{9}{8n^5} \cdot \frac{9}{10}$

3) $\frac{6(n+3)}{7n^2(n+3)} \cdot \frac{n-5}{6}$

4) $\frac{10p(p+6)}{p+7} \cdot \frac{(p+7)(p+1)}{(p+6)(p+1)}$

5) $\frac{6a-12}{3} \cdot \frac{3}{6a+30}$

6) $\frac{1}{10n} \cdot \frac{8n-32}{n-4}$

7) $\frac{5p+25}{5p-25} \cdot \frac{p-5}{8p^2+32p}$

8) $\frac{n^2-4n+3}{9n+81} \cdot \frac{n+9}{n^2-1}$

9) $\frac{10v^3}{10v^2} \cdot \frac{10v}{7v}$

10) $\frac{7}{2} \cdot \frac{3n}{10}$

11) $\frac{8}{4x^2} \cdot \frac{3}{8x}$

12) $\frac{10}{8} \cdot \frac{8r^4}{4r^2}$

13) $\frac{(m-4)(m-1)}{m-4} \cdot \frac{m-1}{4(m-1)}$

14) $\frac{r+10}{9r^2(r-6)} \cdot \frac{9r^2(r-6)}{r+10}$

15) $\frac{n-9}{4} \cdot \frac{4n^2(n+6)}{(9-n)(6+n)}$

16) $\frac{(p+3)(p-3)}{p-6} \cdot \frac{(p-1)(p-6)}{10(p-3)}$

17) $\frac{24x+8}{4x} \cdot \frac{x-6}{24x+8}$

18) $\frac{4p^3-32p^2}{p+3} \cdot \frac{p+7}{4p^3-32p^2}$

19) $\frac{x^2-15x+50}{x^2-16x+60} \cdot \frac{x-6}{x+6}$

20) $\frac{9}{x-2} \cdot \frac{x^2+10x+9}{x+9}$

21) $\frac{70+3n-n^2}{n^2-12n+20} \cdot \frac{n+9}{n^2+19n+90}$

22) $\frac{6m+36}{m+9} \cdot \frac{10m+70}{m^2+13m+42}$

23) $\frac{b^2+14b+48}{2b^3+16b^2} \cdot \frac{2b^3+4b^2}{b^2-8b-20}$

24) $\frac{7p^2+49p}{18p+54} \cdot \frac{27p^3+81p^2}{7p^2+49p}$

DIVIDING: Simplify each expression.

25) $\frac{3}{2p} \div \frac{8p^2}{6}$

26) $\frac{6a^2}{2} \div \frac{3}{8a}$

27) $\frac{9n}{7} \div \frac{6n}{3}$

28) $\frac{10n^3}{7n} \div \frac{5n^2}{8n}$

29) $\frac{2}{4} \div \frac{4v}{6v}$

30) $\frac{9r^2}{3} \div \frac{5}{7}$

31) $\frac{8a^2}{4(5a+1)} \div \frac{5}{4(5a+1)}$

32) $\frac{6k^2(3k-7)}{k+10} \div \frac{2(3k-7)}{2}$

33) $\frac{1}{k-6} \div \frac{k+3}{k^2+10k+21}$

34) $\frac{x+9}{x^2+4x-45} \div \frac{x+7}{x+10}$

35) $\frac{9n-54}{n-7} \div \frac{n^2-9n+18}{n^2-16n+63}$

36) $\frac{5x+45}{10x-25} \div \frac{x^2-81}{20x-50}$

37) $\dfrac{5a^2+30a}{5a+30} \div \dfrac{5a^2-50a}{10a-100}$

38) $\dfrac{x-3}{x^2-2x-3} \div \dfrac{5x+5}{x^2-8x-9}$

39) $\dfrac{p^2+p-42}{p^2+9p+14} \div \dfrac{24+2p-p^2}{2p^2+4p}$

40) $\dfrac{25b}{b+8} \div \dfrac{3b-30}{3b+24}$

41) $\dfrac{3(3x+10)}{(x+3)(x+7)} \div \dfrac{3(3x+10)}{2}$

42) $\dfrac{9p^2(p-9)}{9p^2(p+7)} \div \dfrac{p-9}{5}$

43) $\dfrac{10m^2}{10m^2(m+1)} \div \dfrac{10m^2}{(m+5)(m+1)}$

44) $\dfrac{1}{(x-4)(x-5)} \div \dfrac{6}{(x-8)(x-5)}$

45) $\dfrac{n-9}{n+10} \div \dfrac{4n}{4n^2+40n}$

46) $\dfrac{7}{m+1} \div \dfrac{8}{8m+48}$

47) $\dfrac{4n}{3n^2} \div \dfrac{n+4}{3n^3+12n^2}$

48) $\dfrac{x+9}{4x+24} \div \dfrac{1}{x+6}$

Algebra 2

MULTIPLYING RATIONALS: Simplify each expression.

1) $\frac{10}{5x} \cdot \frac{7}{2x^4}$

$\frac{7}{x^5}$

2) $\frac{9}{8n^5} \cdot \frac{9}{10}$

$\frac{81}{80n^5}$

3) $\frac{6(n+3)}{7n^2(n+3)} \cdot \frac{n-5}{6}$

$\frac{n-5}{7n^2}$

4) $\frac{10p(p+6)}{p+7} \cdot \frac{(p+7)(p+1)}{(p+6)(p+1)}$

$10p$

5) $\frac{6a-12}{3} \cdot \frac{3}{6a+30}$

$\frac{a-2}{a+5}$

6) $\frac{1}{10n} \cdot \frac{8n-32}{n-4}$

$\frac{4}{5n}$

7) $\frac{5p+25}{5p-25} \cdot \frac{p-5}{8p^2+32p}$

$\frac{p+5}{8p(p+4)}$

8) $\frac{n^2-4n+3}{9n+81} \cdot \frac{n+9}{n^2-1}$

$\frac{n-3}{9(n+1)}$

9) $\frac{10v^3}{10v^2} \cdot \frac{10v}{7v}$

$\frac{10v}{7}$

10) $\frac{7}{2} \cdot \frac{3n}{10}$

$\frac{21n}{20}$

11) $\frac{8}{4x^2} \cdot \frac{3}{8x}$

$\frac{3}{4x^3}$

12) $\frac{10}{8} \cdot \frac{8r^4}{4r^2}$

$\frac{5r^2}{2}$

13) $\dfrac{(m-4)(m-1)}{m-4} \cdot \dfrac{m-1}{4(m-1)}$

$\dfrac{m-1}{4}$

14) $\dfrac{r+10}{9r^2(r-6)} \cdot \dfrac{9r^2(r-6)}{r+10}$

1

15) $\dfrac{n-9}{4} \cdot \dfrac{4n^2(n+6)}{(9-n)(6+n)}$

$-n^2$

16) $\dfrac{(p+3)(p-3)}{p-6} \cdot \dfrac{(p-1)(p-6)}{10(p-3)}$

$\dfrac{(p+3)(p-1)}{10}$

17) $\dfrac{24x+8}{4x} \cdot \dfrac{x-6}{24x+8}$

$\dfrac{x-6}{4x}$

18) $\dfrac{4p^3-32p^2}{p+3} \cdot \dfrac{p+7}{4p^3-32p^2}$

$\dfrac{p+7}{p+3}$

19) $\dfrac{x^2-15x+50}{x^2-16x+60} \cdot \dfrac{x-6}{x+6}$

$\dfrac{x-5}{x+6}$

20) $\dfrac{9}{x-2} \cdot \dfrac{x^2+10x+9}{x+9}$

$\dfrac{9(x+1)}{x-2}$

21) $\dfrac{70+3n-n^2}{n^2-12n+20} \cdot \dfrac{n+9}{n^2+19n+90}$

$\dfrac{-7-n}{(n-2)(n+10)}$

22) $\dfrac{6m+36}{m+9} \cdot \dfrac{10m+70}{m^2+13m+42}$

$\dfrac{60}{m+9}$

23) $\dfrac{b^2+14b+48}{2b^3+16b^2} \cdot \dfrac{2b^3+4b^2}{b^2-8b-20}$

$\dfrac{b+6}{b-10}$

24) $\dfrac{7p^2+49p}{18p+54} \cdot \dfrac{27p^3+81p^2}{7p^2+49p}$

$\dfrac{3p^2}{2}$

DIVIDING: Simplify each expression.

25) $\frac{3}{2p} \div \frac{8p^2}{6}$

$\frac{9}{8p^3}$

26) $\frac{6a^2}{2} \div \frac{3}{8a}$

$8a^3$

27) $\frac{9n}{7} \div \frac{6n}{3}$

$\frac{9}{14}$

28) $\frac{10n^3}{7n} \div \frac{5n^2}{8n}$

$\frac{16n}{7}$

29) $\frac{2}{4} \div \frac{4v}{6v}$

$\frac{3}{4}$

30) $\frac{9r^2}{3} \div \frac{5}{7}$

$\frac{21r^2}{5}$

31) $\frac{8a^2}{4(5a+1)} \div \frac{5}{4(5a+1)}$

$\frac{8a^2}{5}$

32) $\frac{6k^2(3k-7)}{k+10} \div \frac{2(3k-7)}{2}$

$\frac{6k^2}{k+10}$

33) $\frac{1}{k-6} \div \frac{k+3}{k^2+10k+21}$

$\frac{k+7}{k-6}$

34) $\frac{x+9}{x^2+4x-45} \div \frac{x+7}{x+10}$

$\frac{x+10}{(x-5)(x+7)}$

35) $\frac{9n-54}{n-7} \div \frac{n^2-9n+18}{n^2-16n+63}$

$\frac{9(n-9)}{n-3}$

36) $\frac{5x+45}{10x-25} \div \frac{x^2-81}{20x-50}$

$\frac{10}{x-9}$

37) $\dfrac{5a^2+30a}{5a+30} \div \dfrac{5a^2-50a}{10a-100}$

2

38) $\dfrac{x-3}{x^2-2x-3} \div \dfrac{5x+5}{x^2-8x-9}$

$\dfrac{x-9}{5(x+1)}$

39) $\dfrac{p^2+p-42}{p^2+9p+14} \div \dfrac{24+2p-p^2}{2p^2+4p}$

$-\dfrac{2p}{4+p}$

40) $\dfrac{25b}{b+8} \div \dfrac{3b-30}{3b+24}$

$\dfrac{25b}{b-10}$

41) $\dfrac{3(3x+10)}{(x+3)(x+7)} \div \dfrac{3(3x+10)}{2}$

$\dfrac{2}{(x+3)(x+7)}$

42) $\dfrac{9p^2(p-9)}{9p^2(p+7)} \div \dfrac{p-9}{5}$

$\dfrac{5}{p+7}$

43) $\dfrac{10m^2}{10m^2(m+1)} \div \dfrac{10m^2}{(m+5)(m+1)}$

$\dfrac{m+5}{10m^2}$

44) $\dfrac{1}{(x-4)(x-5)} \div \dfrac{6}{(x-8)(x-5)}$

$\dfrac{x-8}{6(x-4)}$

45) $\dfrac{n-9}{n+10} \div \dfrac{4n}{4n^2+40n}$

$n-9$

46) $\dfrac{7}{m+1} \div \dfrac{8}{8m+48}$

$\dfrac{7(m+6)}{m+1}$

47) $\dfrac{4n}{3n^2} \div \dfrac{n+4}{3n^3+12n^2}$

$4n$

48) $\dfrac{x+9}{4x+24} \div \dfrac{1}{x+6}$

$\dfrac{x+9}{4}$