

Extra Practice - Rationals

Simplify each expression.

1) $\frac{1}{m-4} \cdot \frac{m^2-6m+8}{m+1}$

$$\frac{1}{\cancel{m-4}} \cdot \frac{(\cancel{m-4})(m-2)}{m+1}$$

$$\frac{m-2}{m+1}$$

2) $\frac{5}{63v^2+90v} \cdot \frac{63v^2+90v}{2v}$

$$\frac{5}{\cancel{9v(7v+10)}} \cdot \frac{\cancel{9v(7v+10)}}{2v}$$

$$\frac{5}{2v}$$

3) $\frac{8n+40}{8} \div \frac{n+5}{9}$ keep, change, flip

$$\frac{\cancel{8}(n+5)}{\cancel{8}} \cdot \frac{9}{\cancel{(n+5)}}$$

$$9$$

5) $\frac{4}{a+10} \div \frac{a+8}{a^2+18a+80}$

$$\frac{4}{\cancel{a+10}} \cdot \frac{(\cancel{a+8})(a+10)}{\cancel{a+8}}$$

$$4$$

4) $\frac{8p^3-48p^2}{p+5} \div \frac{8p^3-48p^2}{p+8}$

$$\frac{\cancel{8p^2}(p-6)}{p+5} \cdot \frac{p+8}{\cancel{8p^2}(p-6)}$$

$$\frac{p+8}{p+5}$$

6) $\frac{1}{3x} \div \frac{7x}{7x^2+14x}$

$$\frac{1}{3x} \cdot \frac{\cancel{7x}(x+2)}{\cancel{7x}}$$

$$\frac{x+2}{3x}$$

7) $\frac{x-9}{4x^2-36x}$

$$\frac{\cancel{x-9}}{4x(\cancel{x-9})}$$

$$\frac{1}{4x}$$

8) $\frac{56n^3}{40n^2+16n}$

$$\frac{\cancel{56n^3}}{8n(\cancel{5n+2})}$$

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

$$9) \frac{r^2 - 8r - 20}{r - 10}$$

$$\frac{\cancel{(r-10)}(r+2)}{\cancel{r-10}}$$

$$r+2$$

$$10) \frac{r^2 + 7r - 18}{r + 9}$$

$$\frac{\cancel{(r+9)}(r-2)}{\cancel{r+9}}$$

$$r-2$$

$$11) \frac{543x^2}{1} \cdot \frac{25}{49} - \frac{1}{49} \cdot \frac{9}{49} \cdot \frac{49x^2}{1}$$

CD: $49x^2$

$$\frac{125x^2 - 9x^2}{225}$$

$$\frac{116x^2}{225}$$

$$12) \frac{24}{1} \cdot \frac{2}{4} + \frac{u^2}{4} \cdot \frac{8u}{1}$$

CD: $2u$

$$\frac{4+u^3}{2u(2u-10)}$$

$$\frac{4+u^3}{4u^2-20u}$$

$$13) \frac{4a^2}{1} \cdot \frac{a^2}{4} - \frac{2}{4} \cdot \frac{4a}{1}$$

CD: $4a^2$

$$\frac{a^4 - 8}{64a^2}$$

$$14) \frac{4a(a+3)}{1} \cdot \frac{1}{4}$$

CD: $4a(a+3)$

$$\frac{a(a+3)}{4(a+3)(a+3) + 16a^2}$$

(a^2+6a+9)

$$\frac{a^2+3a}{4a^2+24a+36+16a^2}$$

$$\frac{a^2+3a}{20a^2+24a+36}$$

or

$$\frac{a(a+3)}{4(5a^2+6a+9)}$$