

2A.1 - Homework

Date _____

Simplify each expression AND state the excluded values when appropriate (only for simplifying).

$$1) \frac{2p^2 - 23p + 45}{6p^3 - 54p^2} \quad \begin{matrix} 6p^2 \neq 0 & p \neq 0 \\ p - 9 \neq 0 & p \neq 9 \end{matrix}$$

$$\frac{(2p-5)(\cancel{p-9})}{6p^2(\cancel{p-9})} = \frac{2p-5}{6p^2}, p \neq 0, 9$$

$$2) \frac{7p^2 - 39p - 18}{3p^2 - 25p + 42} = \frac{7p+3}{3p-7}, p \neq 6, \frac{7}{3}$$

$$3) \frac{15n-15}{15n^3-15n^2} \cdot \frac{3n^2}{n^2+4n-5}$$

$$\frac{\cancel{15}(n-1)}{\cancel{15}n^2(\cancel{n-1})} \cdot \frac{3\cancel{n^2}}{(n-1)(n+5)}$$

$$= \frac{3}{(n-1)(n+5)}$$

$$4) \frac{24p+24}{4p} \div \frac{24p+24}{4p^2-4p} = \boxed{p-1}$$

Keep change

$$5) \frac{3x^2+10x+3}{6x^2+2x} \div \frac{9x+6}{3x+2}$$

↓ flip

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

$$= \frac{x+3}{6x}$$

$$6) \frac{2x^2-12x+18}{12x-36} \div \frac{7x+8}{42x+48} = \boxed{x-3}$$

$$7) \frac{x^2-11x+30}{15x^3+21x^2} \cdot \frac{20x+28}{4}$$

$$\frac{(x-5)(x-6) \cdot \cancel{4}(\cancel{5x+7})}{3x^2(\cancel{5x+7}) \cdot 4}$$

$$= \frac{(x-5)(x-6)}{3x^2}$$

$$8) \frac{m^2-1}{5m+7} \div \frac{40m^2+48m}{25m^2+65m+42} = \frac{(m-1)(m+1)}{8m}$$

$$9) \frac{3v+2}{6v^2+10v+4} \cdot \frac{2v^2+10v+8}{4v^2-32v}$$

$$\frac{3v+2}{2(3v^2+5v+2)} \cdot \frac{2(v^2+5v+4)}{4v(v-8)}$$

$$\frac{\cancel{3v+2}}{2(\cancel{3v+2})(v+1)} \cdot \frac{2(\cancel{v+1})(v+4)}{4v(v-8)}$$

$$= \frac{v+4}{4v(v-8)}$$

$$11) \frac{11 \cdot \cancel{2} \cdot \cancel{2} \cdot b}{7 \cdot \cancel{1} \cdot a \cdot b^5 \cdot 5 \cdot \cancel{1} \cdot b^4 \cdot b^{-1}}$$

$$= \frac{22}{35b^8}$$

$$10) \frac{10x-30}{2x^2-12x+18} \cdot \frac{8x+32}{8} = \frac{5(x+4)}{x-3}$$

$$12) \frac{7x^5y^4}{14xy} \cdot \frac{10}{2x^3y} = \frac{x^7y^4}{10}$$

$$13) \frac{x+2}{x+1} \cdot \frac{x+2}{x-4}$$

Keep
← change
flip

$$\frac{\cancel{x+2}}{x+1} \cdot \frac{x-4}{\cancel{x+2}} = \frac{x-4}{x+1}$$

$$14) \frac{5}{2x+1} \cdot \frac{2x+1}{25} = \frac{1}{5}$$

$$15) \frac{u+2}{u} \cdot \frac{u}{u+2}$$

Keep
← change
flip

$$\frac{\cancel{u+2}}{u} \cdot \frac{u}{\cancel{u+2}} = u$$

$$16) \frac{16}{3} \cdot \frac{u}{2} = \frac{32}{3u}$$