

$$3. \frac{3m^3 - 3m}{6m^4} \cdot \frac{4m^5}{m+1}$$

$$\begin{aligned} \frac{3m^3 - 3m}{6m^4} &= \frac{3m(m^2 - 1)}{6m^4} = \frac{m^2 - 1}{2m^3} \cdot \frac{4m^5}{m+1} = \frac{(m^2 - 1)(4m^5)}{(2m^3)(m+1)} = \frac{2m^2(m^2 - 1)}{(m+1)} \\ &= \frac{2m^2(m+1)(m-1)}{(m+1)} = \frac{2m^2(m-1)}{1} \end{aligned}$$

$$4. \frac{\frac{a^2 - 16}{a+2}}{\frac{a^2 + 3a - 4}{a^2 + a - 2}}$$

$$\frac{a^2 - 16}{a+2} \cdot \frac{a^2 + a - 2}{a^2 + 3a - 4} = \frac{(a^2 - 16)(a^2 + a - 2)}{(a+2)(a^2 + 3a - 4)} = \frac{(a+4)(a-4)(a+1)(a-1)}{(a+2)(a+1)(a+4)} = (a-4)$$

7.

$$\frac{z^2 + 13z + 40}{z+5} \cdot \frac{z+8}{10}$$

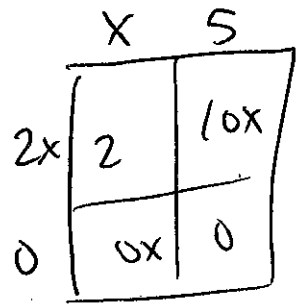
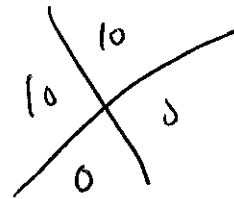
$$\frac{(z+8)(z+8)(z+8)}{10(z+5)}$$

$$= \frac{(z+8)(z+8)}{10}$$

$$= \frac{(z+8)^2}{10}$$

8.

$$\frac{2x^2 + 10x}{x^2 + 6x + 5} = \frac{x^2 + 6x + 9}{x^2 - x - 2}$$



$$\frac{2x^2 + 10x}{x^2 + 6x + 5} \cdot \frac{x^2 - x - 2}{x^2 + 6x + 9} = \frac{(2x)(x+5)}{(x+1)(x+5)} \cdot \frac{(x-2)(x+1)}{(x+3)(x+3)}$$

$$= \frac{(2x)(x+5)(x-2)(\cancel{x+1})}{(\cancel{x+1})(x+5)(x+3)(x+3)}$$

$$= \frac{(2x)(x-2)}{(x+3)(x+3)}$$

$$= \frac{2x^2 - 4x}{(x+3)^2}$$

$$5. \quad \frac{x-3}{a+b} \cdot \frac{a^2-b^2}{3-x}$$

$$\frac{(x-3)(a^2-b^2)}{(a+b)(3-x)} = \frac{(x-3)(a^2-b^2)}{-(a+b)(-3+x)} = \frac{\cancel{(x-3)}(a+b)(a-b)}{-(a+b)\cancel{(-3+x)}} = \frac{-\cancel{(a-b)}}{-a+b} = \frac{-a-b}{-a+b}$$

$$\begin{array}{r} 7 \\ 8 \end{array} \begin{array}{r} -1 \\ -8 \end{array}$$

	4p	=1
p	4p ²	-1p
2	8p	-2

$$6. \quad \frac{16p^2-8p+1}{14p^4} \div \frac{4p^2+7p-2}{7p^5}$$

$$\frac{16p^2-8p+1}{14p^4} \cdot \frac{7p^5}{4p^2+7p-2} = \frac{(16p^2-8p+1)7p^5}{14p^4(4p^2+7p-2)} = \frac{p(16p^2-8p+1)}{2(4p^2+7p-2)} = \frac{p(2(4p+1)(-4p+1))}{2(4p-1)(p+2)}$$

$$\begin{array}{r} -8 \\ -4 \end{array} \begin{array}{r} -4 \\ 16 \end{array}$$

	-4p	1
-4p	16p ²	-4x
1	-4x	1

$$= \frac{-p(4p-1)(-4p+1)}{2(4p-1)(p+2)} = \frac{p(4p-1)}{2(p+2)}$$