

notes 7.9

$$1) \frac{x^3}{x} = \frac{\cancel{x} \cancel{x} \cancel{x}}{\cancel{x}} \quad x^2$$

When you divide  
you subtract  
the powers.

$$2) \frac{x^3}{x^1} = x^{3-1} \quad x^2$$

$$3) \frac{8b^5}{64b^4} = \frac{8b^5}{64b^4} = \frac{1}{8}b^{5-4} \quad \frac{1b}{8}$$

$$4) \frac{xy^3}{3x^2y} = \frac{\cancel{x} \cancel{y} \cancel{y} \cancel{y}}{3 \cancel{x} \cancel{x} \cancel{y}} = \frac{y^2}{3x}$$

$$5) \frac{18x}{81xy^2} = \frac{\cancel{9} \cdot 2 \cdot \cancel{x}}{\cancel{9} \cdot 9 \cdot \cancel{y} \cdot y} = \frac{2}{9y^2}$$

$$6) \frac{3x-6}{x^2-4} \xrightarrow{\text{factor}} \frac{3(x-2)}{(x+2)(x-2)} \xrightarrow{\text{difference of squares}} \frac{3}{(x+2)}$$

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7.)

$$\frac{6p - 24}{12}$$

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

factor a 6

$$\boxed{\frac{p-4}{2}}$$

8.)

$$\frac{8x - 32}{16x}$$

$$\frac{\cancel{8}(x-4)}{\cancel{8}(2x)}$$

factor an 8

$$\boxed{\frac{x-4}{2x}}$$

9.)

$$\frac{7}{14 - 49x}$$

$$\frac{\cancel{7}(1)}{\cancel{7}(2-7x)}$$

factor a 7

$$\boxed{\frac{1}{(2-7x)}}$$

10.)

$$\frac{6}{36 - 6c}$$

$$\frac{\cancel{6}(1)}{\cancel{6}(6-c)}$$

factor a 6

$$\boxed{\frac{1}{(6-c)}}$$

11.)

$$\frac{x-2}{2x-4}$$

$$\frac{\cancel{1}(x-2)}{\cancel{2}(x-2)} = \left(\frac{1}{2}\right)$$

factor a 2

from (x-4)

7.9

12) 
$$\frac{n^2 - n - 12}{n^2 - 4n}$$

$$\frac{(n-4)(n+3)}{n(n-4)}$$

factor the top  
and factor an n from n<sup>2</sup>-4n

$$\left(\frac{n+3}{n}\right)$$

factor difference of squares      one plus one minus

13) 
$$\frac{x^2 - 25}{x - 5}$$

$$\frac{(x+5)(x-5)}{(x-5)} = \boxed{(x+5)}$$

14) 
$$\frac{20x^4}{80x^3}$$

$$\frac{20x^{4-3}}{20(4)}$$

divide by 20  
then subtract the powers

or

$$\boxed{\frac{x}{4}}$$

$$\frac{20x^4}{80x^3}$$

$$\frac{20 \cancel{x} \cancel{x} \cancel{x} \cancel{x}}{20(4) \cancel{x} \cancel{x} \cancel{x}}$$