



Concept: Dividing Expressions

Name: _____

COMPUTER COMPONENT

Instructions: Select the computer program *Understanding Algebra* (Neufeld)
Follow the instructions to the Main Menu.
Select *Dividing Expressions* from the Main Menu.



Work through all sections of the following topics **in order**:

- *Dividing a Monomial by a Monomial*
- *Dividing a Polynomial by a Monomial*
- *Dividing a Polynomial by a Binomial*
- *Combination Questions*
- *Practice Questions*



As you work through the computer exercises, make your own notes in your notebook/math journal.

When you reach the end of the section *Practice Questions* on the computer, move on to the **OFF COMPUTER EXERCISES** below.

OFF COMPUTER EXERCISES

1. Find the answer to $\frac{32}{4}$ by re-writing 32 as $16 + 6 + 10$ and then dividing each term.

$$\frac{16}{4} + \frac{6}{4} + \frac{10}{4} = 4 + 1\frac{1}{2} + 2\frac{1}{2} = 8$$

2. Simplify.

(a) $\frac{12a^3b^2}{48a^2b} =$

$$\frac{ab}{4}$$

(b) $\frac{-12cd}{64c^2d} =$

$$\frac{-3}{16c}$$

(c) $\frac{-55m^5n^4}{11m^6n^2} =$

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

(d) $-\frac{14p^4q^3r^5}{16p^3r^5} =$

$$\frac{-7pq^3}{8}$$

(e) $\frac{2w^8x^3yz^5}{4w^5x^8yz^9} =$

$$\frac{w^3}{2x^5z^4}$$

3. Rewrite your answers in 2(b), 2(c) and 2(e) with only positive exponents.

2(b) _____

2(c) _____

2(e) _____

4. Circle 'true or false'.

(a) When dividing a polynomial by a monomial, we can separate the fraction into a number of separate fractions and add the result.

true

false

(b) Another method used to divide a Polynomial by a monomial is to common factor the denominator, then divide through by like terms.

true

false

(c) Long division can be used when dividing a polynomial by a binomial.

true

false

5. Simplify.

$$(a) \frac{3x - 6xy + 9x}{3x}$$

$$= \underline{2(2 - y)}$$

$$(b) \frac{5a^2 - 55a + 40a^3}{5a}$$

$$= \underline{a - 11 + 8a^2}$$

$$(c) \frac{-8m^2n + 6mn - 10m}{2m}$$

$$= \underline{4mn + 3n - 5}$$

$$(d) \frac{-35pq^4 + 7p^2q^2 - 21p^3q^2}{-7pq^2}$$

$$= \underline{5q^2 - p + 3p^2}$$

6. Simplify. Remember that you will have to use either factoring **OR** long division in order to answer these questions. You may need an extra piece of paper for your work.

$$(a) \frac{x^2 - 64}{x - 8}$$

$$= (x + 8)$$

$$(b) \frac{x^2 - 5x + 6}{(x - 2)}$$

$$= (x - 3)$$

$$(c) \frac{4x^2 - 5x + 8}{x - 2}$$

$$= 4x + 3 + \frac{14}{x - 2}$$

$$(d) \frac{x(x^2 + x - 12)}{x^2 + 4x}$$

$$= (x - 3)$$

$$(e) \frac{6x^2 + x - 11}{x + 4}$$

$$= 6x - 23 + \frac{81}{x + 4}$$

$$(f) \frac{10x^2 - 5x - 1}{(x + 5)}$$

$$= 10x - 55 + \frac{274}{x + 5}$$

7. Simplify.

These questions will cover all of the skills that you learned in this section.

$$(a) \frac{-24k^6}{28k^6}$$

$$= \frac{-6}{7}$$

$$(b) \frac{1}{4x} + \frac{5}{8x}$$

$$= \frac{7}{8x}$$

$$(c) \frac{(x^2 - 64)(3x)}{(x^2 - 8x)}$$

$$= 3(x + 8)$$

$$(d) \frac{4x^2 - 10x + 11}{x - 6}$$

$$= 4x + 14 + \frac{95}{x - 6}$$

$$(e) \frac{8x}{3x - 9} \times \frac{12x - 9}{16x}$$

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

$$(f) \frac{6x}{x^2 - 25} + \frac{2}{x + 5}$$

$$= \frac{2(4x - 5)}{(x + 5)(x - 5)}$$

Use this page for your long division calculations.

