We are skipping long division. Our problems will only deal with divisions by a monomial.

Elementary algebra
Class notes
Dividing Polynomials by a Monomial (section 12.6)

Try your hand at the following problem. Use your instincts to guide you.

Divide.

$$\frac{4x+8}{2}$$

What did you do? Did you divide both the 4x and the 8 by the 2 to get an answer of 2x + 4? You can think of this as distributing the "division by 2" to both terms on top. We will do more complicated divisions the same way. Make sure you divide every term on top by the bottom.

expl 1: Divide.

$$\frac{4x^2+6x+10}{2}$$

expl 2: Divide.

$$\frac{12x^3-4x^2+8x+16}{4x}$$

Remember how to simplify $\frac{12x^3}{4x}$ and the

expl 3: Divide $4y^4+3y^3-5y$ by $4y$.

Leave (reduced) fractions in your answers and use positive exponents.

expl 4: Divide.

$$\frac{80b^2 - 40b + 90}{-10b^2}$$

expl 5: The area of a rectangular piece of cardboard is $4x^2 + 6x$ inches for some unknown variable *x*. Its length is given by $2x$ inches. What is the rectangle's width in terms of *x*? [Hint: Remember the area of a rectangle is equal to the length times the width.]

You might see the following terms. Can you identify the parts of $\frac{4x+8}{2} = 2x + 4$?

dividend:

divisor:

quotient:

Since we are skipping long division, you can ignore the division problems with more than one term on the bottom.