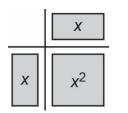
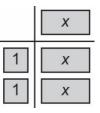



Multiplying and Dividing Polynomials Answers

Part A: Multiplying Polynomials

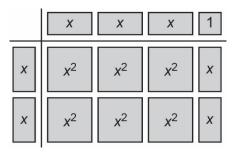
1. 2x represents the product of $2 \times (x)$. Model $(x) \times (x)$. Model $2 \times (x)$.



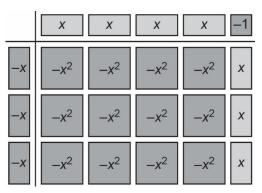


The two models are not equivalent. So, $(x) \times (x) \neq 2x$.

2. a) $2x(3x + 1) = 6x^2 + 2x$



b) $-3x(4x - 1) = -12x^2 + 3x$



Name

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Multiplying and Dividing Polynomials Answers (cont'd)

- 3. a) $2(2x^2 3x + 1) = 4x^2 6x + 2$
 - b) $4(5y^2 3y + 8) = 20y^2 12y + 32$
 - c) $-6x(-2x-9) = 12x^2 + 54x$

Part B: Dividing Polynomials

1. I know that when I divide a polynomial by a monomial, I can write each term of the polynomial as a division with the monomial as the denominator. For example,

 $(-6x^2 + 12x) \div 3x$ can be written as $\frac{-6x^2}{3x} + \frac{12x}{3x}$.

I can then simplify the individual fractions.

I also know that when dividing like terms with different exponents, I subtract the exponents. So, $x^2 \div x = x$, because 2 - 1 = 1.

2. a)
$$(8x^2 + 2x) \div (2x) = \frac{8x^2}{2x} + \frac{2x}{2x}$$

 $= 4x + 1$
b) $(-6x^2 - 3x) \div (-3x) = \frac{-6x^2}{-3x} + \frac{-3x}{-3x}$
 $= 2x + 1$
c) $(-6x^2 - 8x) \div (2x) = \frac{-6x^2}{2x} + \frac{-8x}{2x}$
 $= -3x - 4$



Multiplying and Dividing Polynomials Answers (cont'd)

- 3. a) $\left(\frac{9s}{-3}\right)(-4s) = (-3s)(-4s)$ = $12s^2$
 - b) The order of operations tells me that I need to simplify the expression inside the first set of brackets before multiplying by the expression in the second set of brackets. If I didn't do this, I would have to multiply and divide larger numbers: $\frac{-36s^2}{-3}$. The answer would be the same because the order in which multiplication and division are performed doesn't matter.

4. a)
$$(14x^2 - 7x) \div 7x = \frac{14x^2}{7x} - \frac{7x}{7x}$$

 $= 2x - 1$
b) $(-8x^2 + 6x - 4) \div 2 = \frac{-8x^2}{2} + \frac{6x}{2} - \frac{4}{2}$
 $= -4x^2 + 3x - 2$
c) $\left(\frac{4m^2}{-2m}\right)(-3m) = (-2m)(-3m)$
 $= 6m^2$