

Multiplying Polynomials

Multiplying Monomials with Monomials and Binomials

1 What is the product of the following expressions below?

a) $7x^7(4x^2)$

b) $7x^3(4x^8 + x)$

c) $3x^7(6x^6 + x)$

Multiplying Monomials with other Polynomials

2 *Distribute first, then combine "like terms" (same variable, same exponent)*
What is the product of each of the following expressions below?

a) $-7x(4x^2 + 7x - 5)$

b) $-2x^3(6x^6 + 7x^4 + x^2)$

c) $4x(5x^3 + 2x^2 - 5x) - 2x^2(7x^2 - x + 8)$

d) $3x(4x^2 + x + 5) + 5x^2(2x^3 + 6x - 1)$

Finding the Greatest Common Factor Find the greatest number that divides evenly into the coefficients of each term. Then determine the least exponent for each variable.

3 What is the greatest common factor of:

$5x^3 + 25x^2 + 45x$

$3x^4 - 9x^2 - 12x$

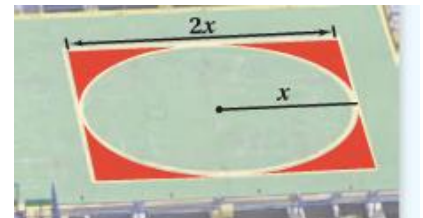
Factoring out a Monomial

What is the factored form of:

$4x^5 - 24x^3 + 8x$

$9x^6 + 15x^4 + 12x^2$

A helicopter landing pad, or helipad, is sometimes marked with a circle inside a square so that it is visible from the air. What is the area of the shaded region of the helipad at the right? Write your answer in factored form.



Multiplying Binomials – FOIL Method

4

What is the product of the expression $(x - 3)(x + 8)$?

- F _____
– Multiply the first two terms together
- O _____
– Multiply the two outside terms together
- I _____
– Multiply the two inside terms together
- L _____
– Multiply the last two terms together

6

What is the product of the following expressions?

a) $(x + 2)(x + 7)$

b) $(3x - 2)(4x + 6)$

c) $(7x^7 + 5x)(4x^2 + 2)$

7

What is the product of the following expressions?

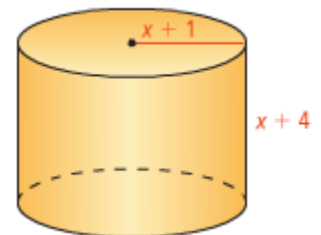
a) $(x + 4)(x + 8)$

b) $(-12x - 4)(6x - 2)$

c) $(x^5 - 3x)(x^3 + 10)$

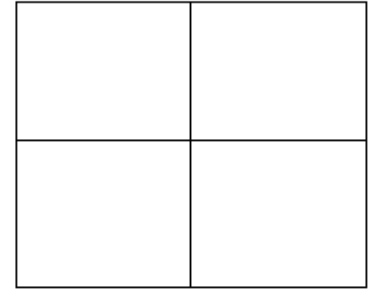
8

A cylinder has the dimensions shown in the diagram. What polynomial in standard form best describes the total surface area of the cylinder?



Multiplying Binomials – The Box Method

5



Multiplying Binomials and Trinomials

9

What is the product of the following expressions?

a. $(x + 1)(x^2 + 3x + 4)$

b. $(x^2 - 4)(x^2 + 6x + 5)$

c. $(x - 3)(x^2 - 5x - 7)$