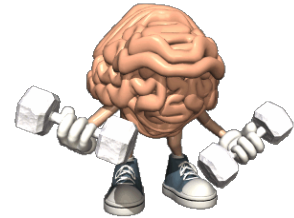


## Curriculum Outcome

- (PR 5) Demonstrate an understanding of polynomials (limited to of degree less than or equal to 2).
- (PR 6) Model, record and explain the operations of addition and subtraction of polynomial expressions, concretely, pictorially and symbolically (limited to polynomials of degree less than or equal to 2).
- (PR 7) Model, record and explain the operations of multiplication and division of polynomial expressions (limited to polynomials of degree less than or equal to 2) by monomials, concretely, pictorially and symbolically.

Student Friendly:  
"Subtracting Polynomials "

# Warm Up

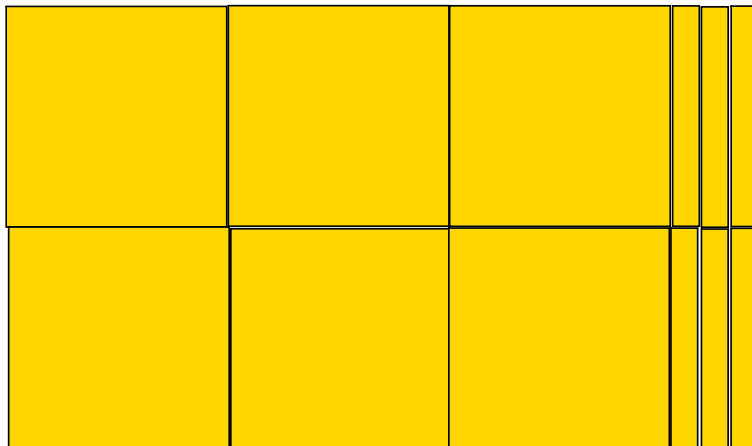


Collect like terms and then simplify the following polynomial

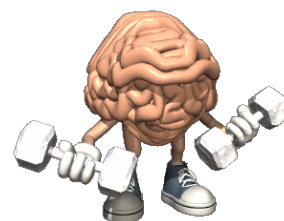
1)  $-14x^3 + 17x - 13 + 9x^3 - 6x - 13$

2)  $-3n^2 - 3mn + 12mn + 5n^2 + 8m^2 + 3n^2 - 5mn - 7m^2$

3) Determine the perimeter of the following shape



# Warm Up



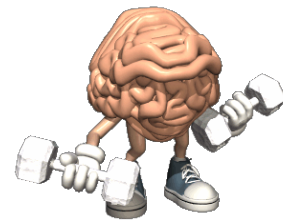
Collect like terms and then simplify the following polynomial

1)  $-14x^3 + 17x - 13 + 9x^3 - 6x - 13$

$$-14x^3 + 9x^3 + 17x - 6x - 13 - 13$$

$$-5x^3 + 11x - 26$$

# Warm Up



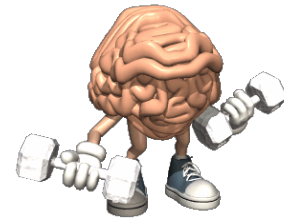
Collect like terms and then simplify the following polynomial

$$2) \quad -3n^2 - 3mn + 12mn + 5n^2 + 8m^2 + 3n^2 - 5mn - 7m^2$$

$$-7m^2 + 8m^2 - 3n^2 + 3n^2 + 5n^2 - 3mn + 12mn - 5mn$$

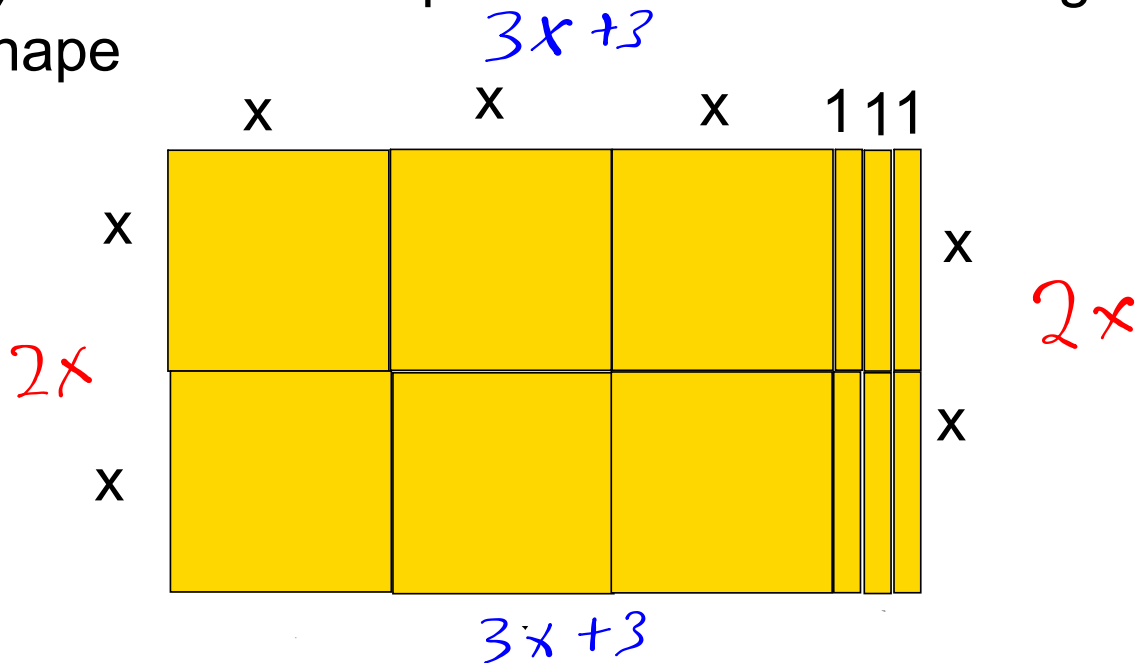
$$m^2 + 5n^2 + 4mn$$

# Warm Up



Collect like terms and then simplify the following polynomial

3) Determine the perimeter of the following shape



$$P = 3x + 3 + 3x + 3 + 2x + 2x$$

$$P = 3x + 3x + 2x + 2x + 3 + 3$$

$$P = 10x + 6$$

Things you already know...

$$18 - 5 = 13$$

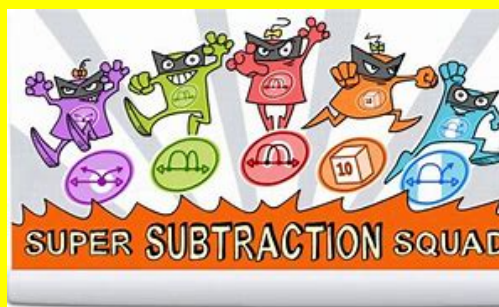


$$16 \overset{+}{-} (-5) = 21$$

$$15x - 31x = -16x$$

$$-16 \overset{+}{-} (-11) = -5$$

# Section 5.4



## *Subtraction of Polynomials*



Carry Through



$$(5x - 11) - (3x - 6)$$

$$5x - 11 - 3x + 6$$

$$5x - 3x - 11 + 6$$

$$2x - 5$$





# Carry Through



$$(2x^2 - 6x + 3) - (6x^2 - 2x + 5)$$

$$2x^2 - 6x + 3 - 6x^2 + 2x - 5$$

$$2x^2 - 6x^2 - 6x + 2x + 3 - 5$$

$$-4x^2 - 4x - 2$$

## You Try

$$(20x^2 + 12x - 7) - (13x^2 - 2)$$

$$20x^2 + 12x - 7 - 13x^2 + 2$$

$$20x^2 - 13x^2 + 12x - 7 + 2$$

$$7x^2 + 12x - 5$$



Try This!

$$(6x^2 - 4x + 5) - (-8x^2 - 9x + 2)$$

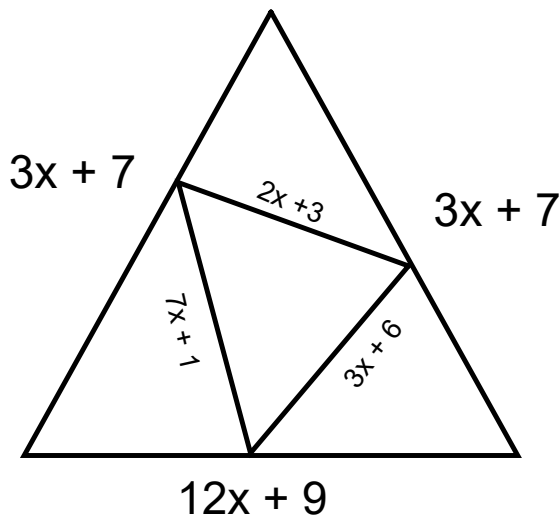


$$6x^2 - 4x + 5 + 8x^2 + 9x - 2$$

$$6x^2 + 8x^2 - 4x + 9x + 5 - 2$$

$$14x^2 + 5x + 3$$

The diagram shows one triangle inside another triangle. What is the difference in perimeter of the triangles?



**Big - Small**

Perimeter Big

$$P = (12x + 9) + (3x + 7) + (3x + 7)$$

$$P = 12x + 3x + 3x + 9 + 7 + 7$$

$$P = 18x + 23$$

Perimeter Small

$$P = (7x + 1) + (2x + 3) + (3x + 6)$$

$$P = 7x + 2x + 3x + 1 + 3 + 6$$

$$P = 12x + 10$$

**Big - Small**

$$(18x + 23) - (12x + 10)$$

$$18x + 23 - 12x - 10$$

$$18x - 12x + 23 - 10$$

$$6x + 13$$

What polynomial is subtracted  
from  $3x^2 - 7x + 9$ ,  
to get  $-5x^2 + 3x - 8$



Think:

$$\begin{array}{r} 3x^2 - 7x + 9 \\ - (8x^2 - 10x + 17) \\ \hline -5x^2 + 3x - 8 \end{array}$$

Example 3.

The height of a ball kicked on Earth can be modelled by:  $18 + 35t - 4.9t^2$

On Mars the height is modelled by:  $52 + 26t - 1.3t^2$

Find a formula for the difference in the height of the ball on Mars as compared to Earth.



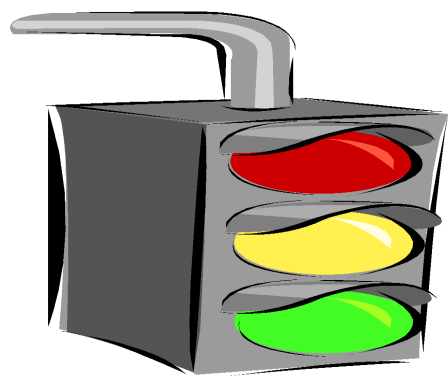
**Mars - Earth**

$$(52 + 26t - 1.3t^2) - (18 + 35t - 4.9t^2)$$

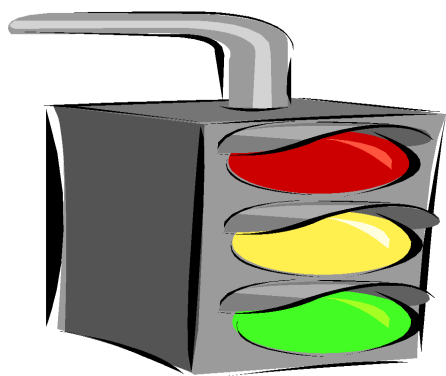
$$52 + 26t - 1.3t^2 - 18 - 35t + 4.9t^2$$

$$4.9t^2 - 1.3t^2 + 26t - 35t - 18 + 52$$

$$3.6t^2 - 9t + 34$$



Now it is  
time for  
Home  
Learning

**PAGE 234-236****QUESTIONS**

(No algebra tiles just combine like terms and subtract)

- |                    |         |
|--------------------|---------|
| #7ac               | #13a, b |
| #8                 | #15 acd |
| #9                 | #16a    |
| #10                | #17     |
|                    | #18     |
| #12 (just correct) |         |