Curriculum Outcome

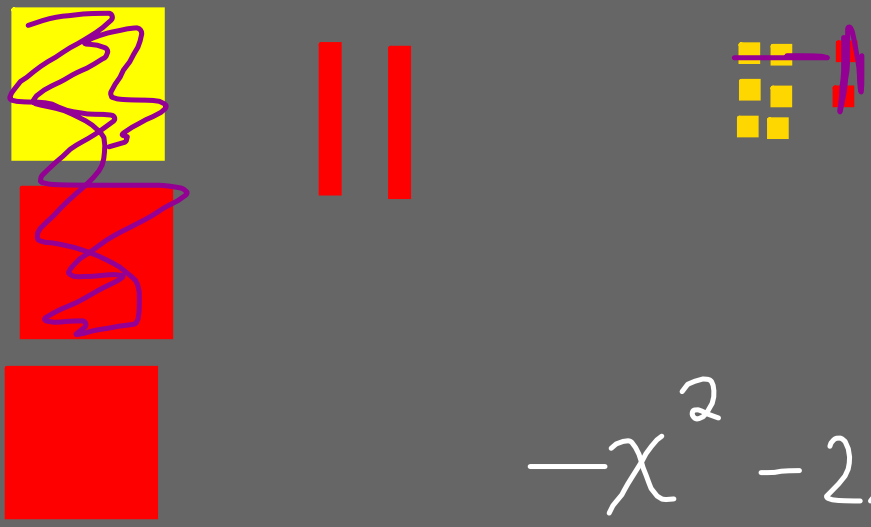
- (PR 5)Demonstrate an understanding of polynomials (limited to of degree less than or equal to 2).
- (PR 6) Model, record and explain the operations of addition and subtraction of polynomial expressions, concretely, pictorially and symbolically (limited to polynomials of degree less than or equal to 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:
“Collecting like terms "

Warm Up

Write the simplified polynomial for the following algebra tiles.

Show collecting like terms and show zero pairs



$-x^2 - 2x + 4$

Simplify the following polynomials

$3n^2 + 7 - 12 - 5n^2 + 10$

$3n^2 - 5n^2 + 7 - 12 + 10$

$-2n^2 + 5$

$7n^2 - 3n + 12n - 2n^2 + 8$

$7n^2 - 2n^2 - 3n + 12n + 8$

$5n^2 + 9n + 8$

$3x^2y$

$5x^2y$

$2xy$

$4xy$

$-8xy^2$

$10xy^2$

Polynomial Expressions

Like terms are $-3x^2$ and $4x^2$
(same letter with the same numerical exponent)

Unlike Terms are $-x^2$ and x or are y^2 and t^2

(either different letters and/or different numerical exponent)

Simplified Form

*fewest algebra tiles possible
*contains only one term of each degree and no terms with a zero coefficient

Always simplify any polynomial by grouping like terms.

Collect like terms and then simplify the following polynomial

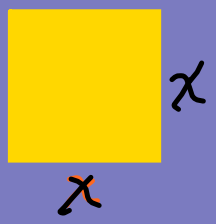
Collect like terms and then simplify

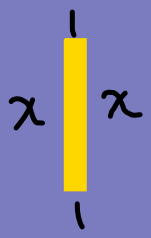
$-4x^3 + 3 - 3x^2 + 7x^3 - 4x^2 + 6$

$-4x^3 + 7x^3 - 3x^2 - 4x^2 + 3 + 6$

$3x^3 - 7x^2 + 9$

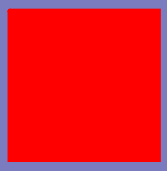
Area





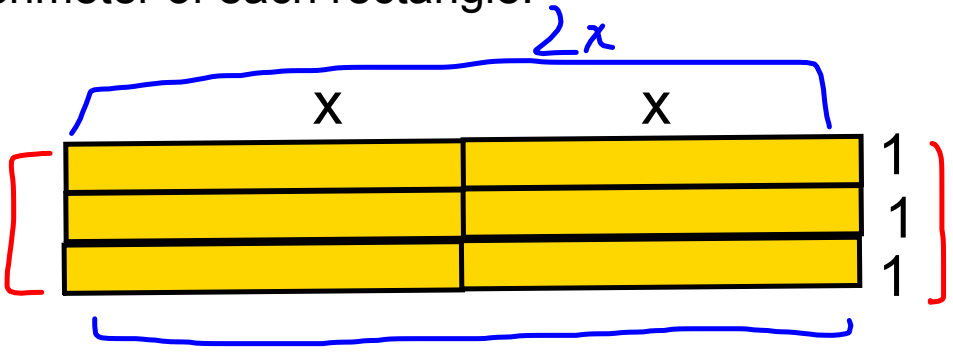
$P = x + x + 1 + 1$

$= 2x + 2$



Perimeter - **is the distance around an object**
- to calculate you add the length of each side

Write a polynomial to represent the perimeter of each rectangle.



P = side + side + side + side

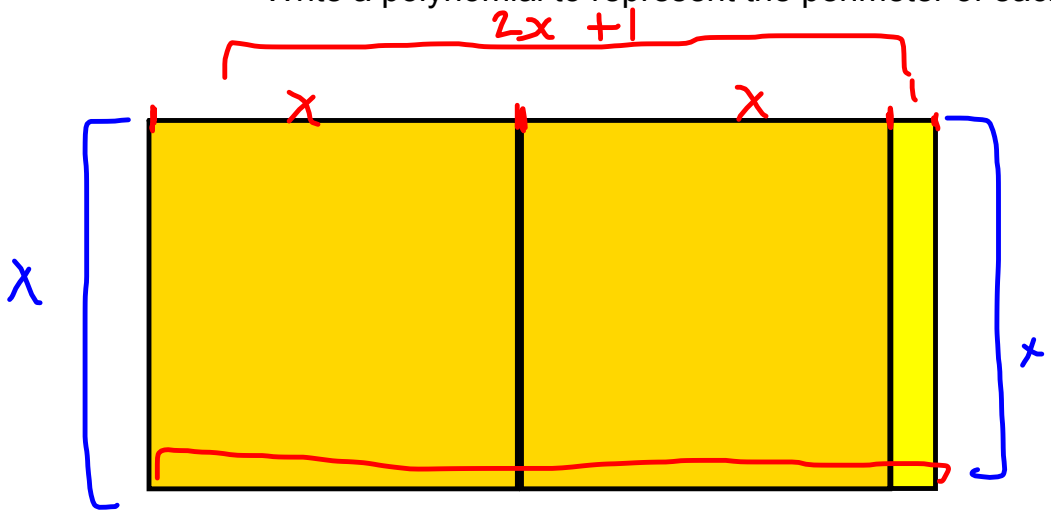
$= 2x + 2x + 3 + 3$

$= 4x + 6$

Perimeter - is the distance around an object
- to calculate you add the length of each side

Write a polynomial to represent the perimeter of the rectangle.

Example 2) Write a polynomial to represent the perimeter of each rectangle.



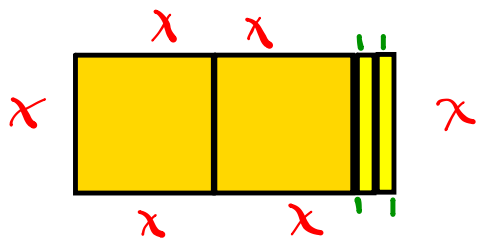
P = side + side + side + side

$= 2x + 1 + 2x + 1 + x + x$

$= 2x + 2x + x + x + 1 + 1$

$P = 6x + 2$

ımple 3) Use algebra tile to make the rectangle with perimeter 6x + 4



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6
#7
#8 Note (Draw out, cancel out zero pairs , redraw answers then write out expression)

Wednesday

11 (acf)
#12 acf
#13 acf
#14acf

Thursday's

#19cd
#20ab
#22

6. From the list, which terms are like $8x$?
$-3x, 5x^2, 4, 3x, 9, -11x^2, 7x, -3$
Explain how you know they are like terms.

7. From the list, which terms are like $-2n^2$?
$3n, -n^2, -2, 4n, 2n^2, -2, 3, 5n^2$
Explain how you know they are like terms.

8. For each part, combine tiles that represent like terms.
Write the simplified polynomial.

a)

b)

c)

d)

9. Identify the equivalent polynomials in the diagrams below. Justify your answers.

a)

b) 

c) 

d) 

e) 

f) 

11. Use algebra tiles to model each polynomial, then combine like terms. Sketch the tiles.

a) $2c + 3 + 3c + 1$

b) $2x^2 + 3x - 5x$

c) $3f^2 + 3 - 6f^2 - 2$

d) $3b^2 - 2b + 5b + 4b^2 + 1$

e) $5t - 4 - 2t^2 + 3 + 6t^2$

f) $4a - a^2 + 3a - 4 + 2a^2$

12. Simplify each polynomial.

a) $2m + 4 - 3m - 8$

b) $4 - 5x + 6x - 2$

c) $3g - 6 - 2g + 9$

d) $-5 + 1 + h - 4h$

e) $-6n - 5n - 4 - 7$

f) $3s - 4s - 5 - 6$

13. Simplify each polynomial.

a) $6 - 3x + x^2 + 9 - x$

b) $5m - 2m^2 - m^2 + 5m$

c) $5x - x^2 + 3x + x^2 - 7$

d) $3p^2 - 2p + 4 + p^2 + 3$

e) $a^2 - 2a - 4 + 2a - a^2 + 4$

f) $-6x^2 + 17x - 4 - 3x^2 + 8 - 12x$

14. Simplify each polynomial.

a) $3x^2 + 5y - 2x^2 - 1 - y$

b) $pq - 1 - p^2 + 5p - 5pq - 2p$

c) $5x^2 + 3xy - 2y - x^2 - 7x + 4xy$

d) $3r^2 - rs + 5s + r^2 - 2rs - 4s$

e) $4gh + 7 - 2g^2 - 3gh - 11 + 6g$

f) $-5s + st - 4s^2 - 12st + 10s - 2s^2$

a) $3x^2 + 5y - 2x^2 - 1 - y$

$3x^2 - 2x^2 + 5y - y - 1$

$1x^2 + 4y - 1$

18. Assessment Focus

a) A student is not sure whether $x + x$ simplifies to $2x$ or x^2.
Explain how the student can use algebra tiles to determine the correct answer.
What is the correct answer?

b) Simplify each polynomial. How do you know that your answers are correct?

i) $-2 + 4r - 2r + 3$

ii) $2t^2 - 3t + 4t^2 - 6t$

iii) $3c^2 + 4c + 2 + c^2 + 2c + 1$

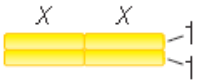
iv) $15x^2 - 12xy + 5y + 10xy - 8y - 9x^2$

c) Create a polynomial that cannot be simplified. Explain why it cannot be simplified.

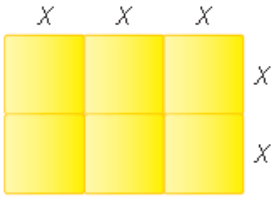
19. Write a polynomial to represent the perimeter of each rectangle.

a)

b)

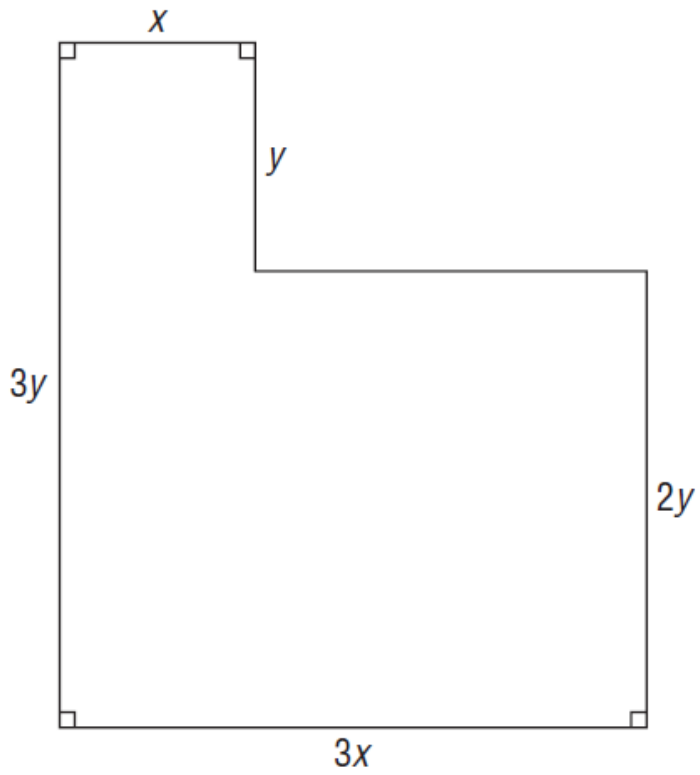


c)



d)

22. Write a polynomial for the perimeter of this shape. Simplify the polynomial.



Attachments

Course Outline Grade 9 2010-2011 Second Semester.docx