ADDING AND SUBTRACTING MONOMIALS (COLLECTING LIKE TERMS)

LESSON NOTES

BIG IDEAS:

- Numbers, variables, and products of numbers and variables are called **monomials**
- **Like terms** contain the same variables with the same exponents
- Only **like terms** can be combined through **addition** or **subtraction**

EXAMPLE 1

Like terms:

$-12y$ and $\frac{1}{3}y$

$5x^2$ and $-3x^2$

$6xy$ and $-9yx$

EXAMPLE 2

$$5k+(-3k)+9-4$$
$$=5k-3k+9-4$$
$$=2k+5$$

EXAMPLE 3

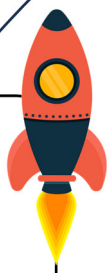
$$-5x^2-6x+12x^2+4x$$
$$=-5x^2+12x^2-6x+4x$$
$$=7x^2-2x$$

EXAMPLE 4

$$4x+(-3y)-(-2y)+x$$
$$=4x-3y+2y+x$$
$$=4x+x-3y+2y$$
$$=5x-y$$

MORE EXAMPLES

Things to remember...



THINKING BEYOND...

1. Simplify the expression $3\sqrt{5}-8\sqrt{3}+5\sqrt{3}+6\sqrt{5}$.

2. The perimeter of a rectangle, in centimetres, is given by the expression $20x+48$. If the rectangle's length is 6 centimetres greater than its width, determine expressions for the length and width of the rectangle.

3. An integer is **even** if it can be written as $2k$ for some integer k. An integer is **odd** if it can be written as $2k+1$ for some integer k.
   a) Prove algebraically that the sum of two even integers is even.
   b) Prove algebraically that the sum of two odd integers is even.
   c) Prove algebraically that the sum of an even integer and an odd integer is odd.