Warm-up

Multiply these expressions:

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

$2x^4 - 4x^3 + 3x^2 + 4x^3 - 8x^2 + 6x + 12x^2 - 24x - 18$

$2x^4 - 17x^2 + 30x - 18$

2.) $(-3x^2 - 4x - 10)(5x^2 + 2x + 2)$

$-15x^4 - 6x^3 - 6x^2 - 20x^3 - 8x^2 - 8x - 50x^2 - 20x - 20$

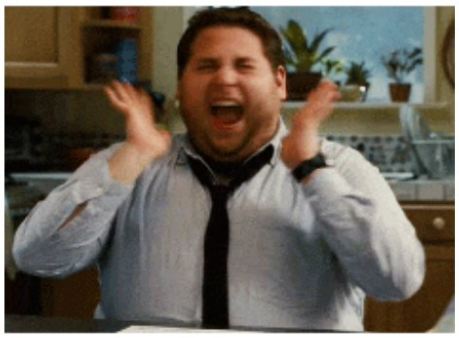
$-15x^4 - 26x^3 - 64x^2 - 28x - 20$

Agenda:

1) "Structures of Expressions" - Guided Notes

2) Independent Practice.

3) Exit Ticket.



Expressions!

Variables: A letter used to represent a value or unknown quantity that can change or vary.

x, y

Term: A number, a variable, or the product or a number and variables.

2, x, 2x

Constant: A term that does not contain a variable.

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Coefficient: The number multiplied by a variable in an algebraic expression.

8x

Quadratic Expressions (Standard form): An expression where the highest power of the variable is the second power. It can be written in form ax^2+bx+c, where x is the variable, and a,b, and c are constants.

$2y^2$ $2x^2+5x+6$

Expressions! -
Notes continued

Monomial: An expression with a single term.

$6, x, 6x$

Binomial: An expression with two terms.

$6x+2, x^2+6x$

Trinomial: An expression with three terms.

$6x^2+4x-2$

Descending order: An expression written in an order so that the first term has the highest power of exponents, and the following terms have less power than the previous term.

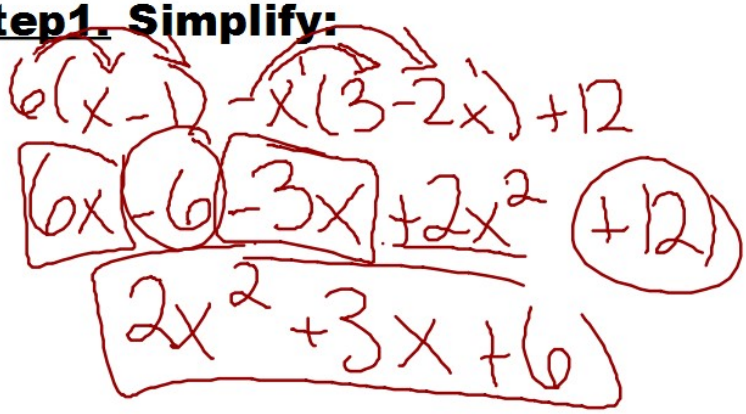
$3x^2y^4-2x^5y^3+8x-4y+6x^3y^5$

$-2x^5y^3+6x^3y^5+3x^2y^4+8x-4y$

Example 1:

Identify each term, coefficient, and constant term of 6(x-1)-x(3-2x)+12. Classify the expression as a monomial, binomial, or trinomial. Determine whether it is a quadratic expression.

Step1. Simplify:



Step 3. Determine:

monomial / binomial / trinomial, Why?

3 terms

Step 2. Identify:

- **Terms:** $2x^2, 3x, 6$
- **Coeffcients:** 2, 3
- **Constants:** 6

***Conclusion:* Is it a quadratic expression? Why?**

yes, highest exponent is 2.

Example 2:

Translate the verbal expression "take triple the difference of 12 and the square of x, then increase the result by the sum of 3 and x" into an algebraic expression. Identify the terms, coefficients, and constant term(s) of the given expression. Is the expression quadratic?

Step1. Annotate & Translate:

$3(12-x^2)+(3+x)$

$36-3x^2+3+x$

$-3x^2+x+39$

Step 2. Simplify:

Step 3. Identify:

- **Terms:** $-3x^2, x, 39$
- **Coeffcients:** $-3, 1$
- **Constants:** 39

Step 4. Determine:

monomial / binomial / trinomial

Why?

3 terms

***Conclusion:* Is it a quadratic expression? Why?**

yes. highest exponent is 2.

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3. Write a quadratic expression that contains two terms, a coefficient of 7, and a constant of 10.

$7x^2 + 10$

Determine whether the expression is a quadratic expression. Explain your reasoning.

5.) $8x^2 - 2x(1 + 4x) + 2$

$-2x + 2$ not quadratic. no exponent of 2

$8x^2 - 2x - 8x^2 + 2$

7.) Half the sum of 12 and x^2 decreased by one-third x

$\frac{1}{2}(12 + x^2) - \frac{1}{3}x$

yes quadratic b/c highest exponent is 2

8.) The perimeter of a square, which is the product of 4 and the length of its side, s.

$4s$

not quadratic. no exponent of 2

Independent Work

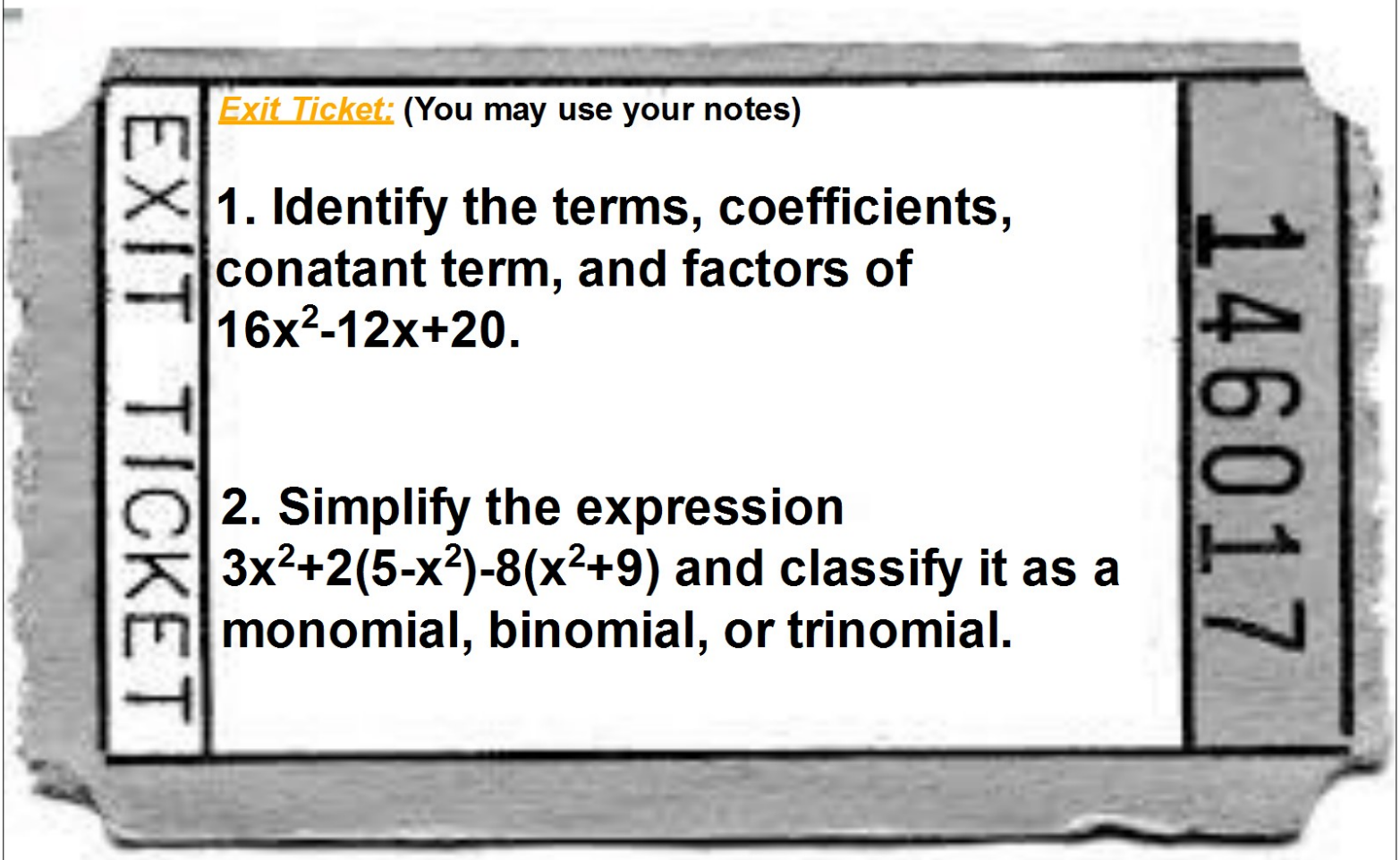
1. Solutions are available at the front of the classroom.

2. Whatever you do not finish will be your homework.

3. Ask yourself, ask around, then ask the teacher.

Expectations:

- You may work with a partner.
- Music volume < Talking volume.
- 30 minutes.


EXIT TICKET
Exit Ticket: (You may use your notes)
1. Identify the terms, coefficients, conatant term, and factors of $16x^2-12x+20$.
2. Simplify the expression $3x^2+2(5-x^2)-8(x^2+9)$ and classify it as a monomial, binomial, or trinomial.
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