

Pre-Requisite Skills for Honors Algebra II

The first week of the course will be spent revisiting essential skills for this course. It is your responsibility to do whatever you need to review these topics from prior math courses in order to successfully move on with the actual content of Honors Algebra II. The following are suggested ways of reviewing this material:

- Test yourself by trying it on your own first
- Work with a friend on topics you struggled with
- Look in the textbooks provided during class time
- Watch videos on Khan Academy or at other credible sites
- Make a phone call to Rose Hulman's Homework Hotline
- Ask your teacher specific questions
- Review any topics that were difficult for you

Classifying Numbers

Classify the following numbers as natural, whole, integer, rational, irrational, and/or real.

Notes:

1) $\sqrt{16}$

2) -3

3) 0

4) $\frac{13}{5}$

5) $\overline{3.33333}$

6) $\sqrt{3}$

Rounding vs Truncating

- a) Round the following numbers and b) truncate the following numbers to the hundredths. Notes:

1) 3.3765

a)

b)

2) -12.4444

a)

b)

Order of Operations

Simplify the following using the correct order of operations.

Notes:

$$1) 4 - 3[4 - 2(6 - 3)] \div 2$$

$$2) -\{2x - [3 - (4 - 3x)] + 6x\}$$

$$3) 6 + \frac{16-4}{2^2+2} - 2$$

$$4) -3x - (-4x) + (-2)^4$$

$$5) -3^2 - \frac{2x+6}{2} + 4x$$

Simplify Fractions

Simplify and write as a single (proper or improper) fraction.

Notes:

$$1) \frac{x}{5} - \frac{2x}{3}$$

$$2) \frac{4y}{3} \div \frac{2y}{6}$$

$$3) 4\frac{1}{3} \cdot 2\frac{2}{7}$$

$$4) 1 - \frac{7}{5}$$

$$5) 2z + \frac{5z}{3}$$

Evaluate the Algebraic Expression

1) $\frac{-a}{2b}$ for $a = -2, b = 3$

Notes:

2) $\frac{m_1 \cdot m_2}{r}$ for $m_1 = 2, m_2 = 3, r = 10$

Exponent Expressions

Simplify completely.

Notes:

1) 3^{-3}

2) $-5x^0$

3) t^5t^7

4) $(-2y^5)^3$

5) $\frac{2xz^{-6}}{6x^3z^{-8}}$

6) $\left[\frac{a^2(b^{-2}c^3)^{-1}}{(a^4b^{-3})^2c^4} \right]^{-2}$

Scientific Notation

Write in scientific notation.

Notes:

1) 0.00000345

2) 187,000,000,000

Write in decimal form.

3) 2.134×10^{-7}

4) 3.65809×10^9

Write in single scientific notation.

5) $(2.45 \times 10^{-10})(5.79 \times 10^{22})$

6) $(4.72 \times 10^{32}) / (1.29 \times 10^{-5})$

Standard Form Polynomials

Write in standard form and state the degree and number of terms.

Notes:

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

2) $2 + 4x^2 - 6x$

Polynomial Expressions

Simplify the polynomials and write in standard form.

Notes:

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

2) $(4 - 2x - 8x^2) - 2(3 + 3x)$

3) $(x + 1)(x^2 - 2x + 3)$

4) $(r - 3)^2(r + 3)^2$

- 5) A rectangular sheet of paper is used to construct a box by cutting out squares of length x from each corner. If the original sheet of paper is 8 ft. by 15 ft., what is the volume of the box?

Factoring

Factor out the greatest common factor.

Notes:

$$1) x^3 - x^2 + 2x$$

$$2) 15z^2 + 25z$$

$$3) 2r^2 - 8$$

More Factoring

Factor completely.

Notes:

1) $1 - t^4$

2) $4x^2 - 81$

3) $25x^2 - 20xy + 4y^2$

4) $10x^2 - 31x + 15$

Even More Factoring

Factor completely.

Notes:

1) $64m - m^4$

2) $w^3 + 125$

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

4) $-6x^2 + x + 2$