

In preparation for Honors Algebra II next school year at Heritage High School, please complete this review packet of Algebra I topics. It will be collected the first day of class.

Looking for some help? Phone a friend, ask Google, search YouTube, or comb through Khan Academy for support and videos. We've labeled sections to help you with the search!

SHOW ALL YOUR WORK FOR FULL CREDIT!!

SECTION 1: Solving Multi-Step Equations

For #1 – 6, solve each equation.

1) $-5(-4x - 7) = -85$

2) $5p + 5(3p + 6) = 190$

3) $41 = 3(2 - 3p) + 2(7p + 5)$

4) $5 - 2p + 3 = -p + 14$

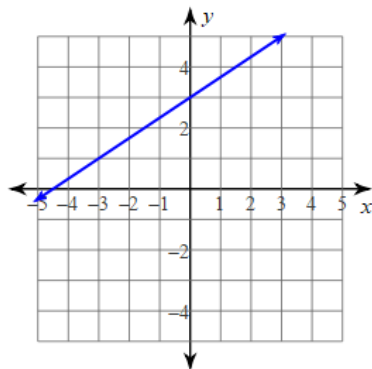
5) $-v + 15 = -(7v + 5) + 2$

6) $6(1 - 6m) + 4 = -5(1 + 7m)$

SECTION 2: Writing Equations of Lines

For #7 – 12, write the equation of a line in slope-intercept form with the given conditions.

7) This graph



8) Line passes through $(-3, 2)$ and has a slope of $-\frac{1}{3}$

9) Passes through $(-4, -1)$ and $(4, -5)$

10) Passes through $(-1, 5)$ and is parallel to
 $y = -2x + 4$

11) Passes through $(4, 5)$ and is perpendicular
to $y = -4x + 3$

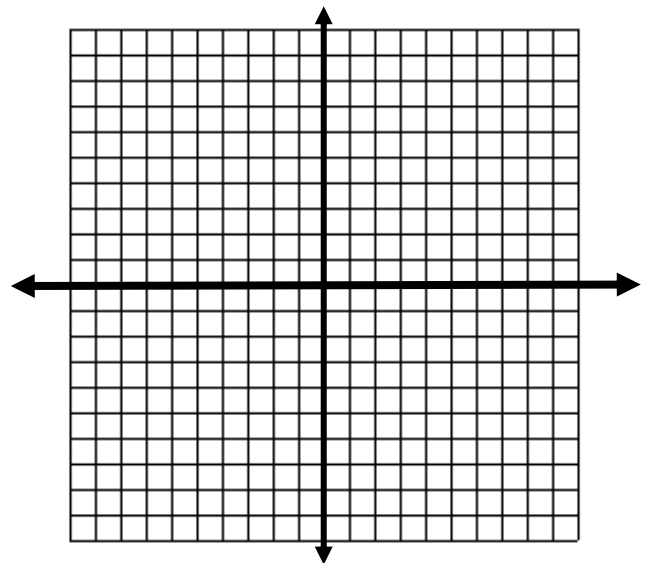
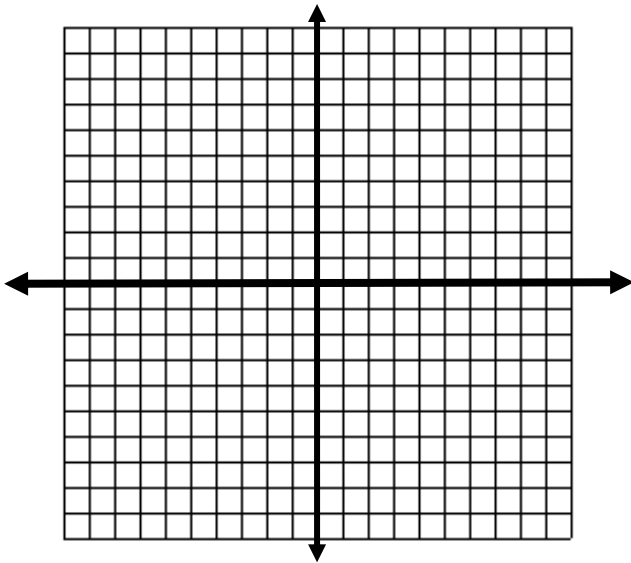
12) Standard form: $9x - 10y = -24$

SECTION 3: Solving Systems of Linear Equations

For #13 and 14, solve each system by graphing.

$$13) \begin{cases} y = x - 2 \\ y = -\frac{1}{2}x + 4 \end{cases}$$

$$14) \begin{cases} 7x + 2y = -8 \\ x + 2y = 4 \end{cases}$$



For #15 and 16, solve each system algebraically using either substitution or elimination.

$$15) \begin{cases} y = x - 3 \\ 6x + 2y = 18 \end{cases}$$

$$16) \begin{cases} -8x + y = 16 \\ 16x - 2y = -28 \end{cases}$$

SECTION 4: Polynomial Operations

For #17 and 18, add or subtract the polynomials. Write your final answers in standard form.

$$17) (5r^3 - r + 6) + (8 - 8r^2 + 5r^3)$$

$$18) (2 + 4x^2 - x) - (5 + x^3 + 3x^2)$$

For #19 – 22, multiply the polynomials. Write your final answers in standard form.

$$19) 5v^2(4v^2 + 2v)$$

$$20) (6m - 6)(5m - 2)$$

$$21) (8x - 7)(3x + 4)$$

$$22) (x - 8)(4x^2 + 5x + 2)$$

For #23 – 28, factor each polynomial.

$$23) \text{GCF: } 25x^4 - 15x$$

$$24) \text{Difference of squares: } 9x^2 - 16$$

$$25) n^2 + 6n - 7$$

$$26) n^2 - 9n + 8$$

$$27) 3a^2 - a - 2$$

$$28) 7r^2 + 10r - 8$$

SECTION 5: Solving Quadratic Equations

29) State the Quadratic Formula.

For #30 – 32, solve each quadratic equation. You must solve by factoring or using the Quadratic Formula.

$$30) x^2 - 2x = 35$$

$$31) x^2 + 2x = 0$$

$$32) 3x^2 - 11x + 8 = 0$$