

Math 10 Pre-AP – Review January 2008.

Systems of equations.

Systems of inequalities: graph solution.

Regularity: data, domain, range and graphs.

Equations: solving equations, formula rearranging, $y = mx + b$, slope, x-intercept and y-intercept.

Factor: common factors, binomials, trinomials and 4-term polynomials.

Quadratic functions: standard and transformational form, reflection, horizontal and vertical translation, stretch, mapping notation and graphs.

1. Solve the following systems of equations:

a) $5x + 2y = 11$

$x + y = 4$

b) $x - y = -11$

$7x + 4y = -22$

c) $6x - 7y = 47$

$2x + 5y = -21$

d) $8x + 3y = 41$

$6x + 5y = 39$

e) $5x + 7y = -15$

$2x + 9y = -6$

f) $9x - 5y = 26$

$4x - 3y = 17$

g) $5x + 2y = 10$

$5x + 2y = 20$

h) $2x + 3y = -1$

$10x + 15y = -5$

2. Solve the systems of inequalities, find the points of intersection and state whether they are part of the solution.

a) $y + 2x \geq 4$

$3x - y < 6$

$2x - 3y > 0$

b) $x - 6y \leq -5$

$x > 4$

c) $x + 2y \leq 2$

$x - 2y \geq -2$

$2x + 7y \geq 7$

d) $x \geq 0$

$x + y < 6$

3. Determine the domain and range of the following relation.

$\{(-1, 0), (-3, -2), (-5, 2), (-1, 6)\}$

4. The base charge of a taxi is \$5.00, plus \$0.30 per kilometer.
- What is the dependent variable? What is the independent variable?
 - Write the equation.
 - What distance could be travelled for \$32.00?
5. For each of the following equations, find the slope and the y-intercept.
- $y = -2x + 9$
 - $y = -3x + 8$
 - $2x + 4y = 12$
 - $3x - 2y - 7 = 0$
6. Find the slope for each line passing through the following points:
- $(-2, 1), (-1, 2)$
 - $(1, 2), (2, 2)$
 - $(3, 2), (3, -4)$
7. Write each of the following equations in standard form.
- $5x + 3y = 12$
 - $-7x - 2y = 14$
8. Find the equation for each line.
- Passing through $(-2, 5)$ with a slope of 3.
 - Passing through $(-1, 4)$ and $(2, 7)$.
 - With an x-intercept of -3 and a slope of $\frac{1}{2}$.
 - With an x-intercept of 5 and a y-intercept of -1.
9. Sketch the graph:
- Using a table of values.
 $2x - y = 4$
 - Using the x-intercept and the y-intercept.
 $3x - 2y = -6$
 - Using the y-intercept and the slope.
 $y = -\frac{2}{3}x + 7$
10. Rearrange each formula.
- $P = 2L + 2t, L =$
 - $V = \pi r^2 h, h =$
 - $c^2 = a^2 + b^2, a =$
 - $Ax + By + C = 0, y =$
 - $\frac{x}{a} + \frac{y}{b} = 1, b =$
 - $F = \frac{m}{2} - at^2, t =$

11. Simplify.

a) $(6a^3b)(-2a^2b^2)$

b) $\frac{(-54x^3y^2)}{(-6xy^2)}$

c) $\frac{9x^2y^3 - 12xy^2 + 18x^2y^2}{-3xy}$

d) $2x + (5x - 10) - (7x + 2)$

e) $5(x + 9) - 4(x - 5) + 2(x + 10)$

f) $(x - 3)(2x + 5)$

g) $3m(4 - m) + 2m(m - 1) - 5(m^2 - m)$

h) $-3(2x + 3)(5x - 1) - (3x + 2)^2$

i) $3(2x - 3y)^2 - 4(x - y)(3x + 5y)$

12. Factor.

a) $16a^2 - 9b^2$

b) $y^2 - 8y - 48$

c) $2m^2 + 2m - 112$

d) $30t^3 - 120t$

e) $r^2 - 2tr - 63t^2$

f) $2xyz - 6wxz + 4xz$

g) $a^4 - 5a^2 - 36$

h) $t^2 - 25t - 26$

i) $3x^2 + 17x + 10$

j) $a^4 - 16$

k) $6mx - 15my - 5ny + 2nx$

l) $x^2 - 4x - 21$

m) $25(x + 2y)^2 - 9(x - 2y)^2$

n) $x^4 - 5x^2 + 4$

o) $m^4 - 9m^2 - 112$

p) $(a - b)^2 - 16(a + 2b)^2$

13. Solve.

a) $2(x - 4) = 5(x + 1)$

b) $2\left(m + \frac{4}{5}\right) = 7\left(m - \frac{1}{5}\right)$

c) $x^2 + 8x = 0$

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

e) $7 - 3p + 4p = 2 - 9p + 12$

f) $\frac{2x + 6}{7} = \frac{x - 5}{2}$

g) $2x^2 + x - 6 = 0$

h) $\frac{3}{5}y + \frac{1}{2}y = 12$

i) $\frac{1}{2}x^2 - x = \frac{5}{2}$

j) $\frac{3h - 8}{2} - \frac{1 + 2h}{3} = \frac{1 - 3h}{4}$

k) $x^2 + 3x = 10$

l) $(r + 7) + 2(2r - 1)^2 = (1 - 2r)(1 - 4r)$

m) $2(x - 1)^2 - 3(x - 2)^2 = 6 - (x - 1)^2$

n) $\frac{3}{5}(2y - 1) - \frac{2}{5}(3y + 4) = \frac{1}{15}$

o) $-5x + 4x^2 - 6 = 0$

p) $\frac{1}{5}x + \frac{2}{5} = \frac{5}{6}x - \frac{3}{2}$

q) $\frac{x + 2}{x - 1} = \frac{2x + 3}{x + 2}$