Name: Date:
Teacher: Class/Period:

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1) Consider this system of inequalities:

$$\begin{cases} x > -2 \\ 2x - 5y \leq -20 \\ y < -3x + 12 \end{cases}$$

A. Graph the system of inequalities. Explain how you found your answer.

B. What are the exact points of intersection of each pair of boundary lines of the inequalities? Show your work algebraically, and explain how you found your answer.

Please use the space below to write your response(s) to the writing assignment provided by your teacher. If there are multiple tasks to the question, please clearly label the number or letter of each task in the column to the left of your answers. If you need additional pages for your response, your teacher can provide them.

Please write the name of the writing assignment here: ________________________________

Task

QualityCore™

Reference Sheet for the QualityCore™ Algebra II End-of-Course Assessment

Equations of a Line

Standard Form	$Ax + By = C$	A, B, and C are constants with A and B not both equal to zero.
Slope-Intercept Form	$y = mx + b$	(x_1, y_1) is a point.
Point-Slope Form	$y - y_1 = m(x - x_1)$	m = slope b = y-intercept

Quadratics

Standard Form of a Quadratic Equation	$ax^2 + bx + c = 0$	a, b, and c are constants, where $a \neq 0$.
Quadratic Formula	$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$	

Conic Sections

Circle	$(x-h)^2 + (y-k)^2 = r^2$	center (h,k) r = radius	
Parabola	$y = a(x-h)^2 + k$	axis of symmetry $x = h$ directrix $y = k - \frac{1}{4a}$	vertex (h,k) focus $\left(h, k + \frac{1}{4a}\right)$
Parabola	$x = a(y-k)^2 + h$	axis of symmetry $y = k$ directrix $x = h - \frac{1}{4a}$	vertex (h,k) focus $(h + \frac{1}{4a}, k)$
Ellipse	$\frac{(x-h)^2}{a^2} + \frac{(y-k)^2}{b^2} = 1$	foci $(h \pm c, k)$ where $c^2 = a^2 - b^2$, center (h,k)	
Ellipse	$\frac{(y-k)^2}{a^2} + \frac{(x-h)^2}{b^2} = 1$	foci $(h, k \pm c)$ where $c^2 = a^2 - b^2$, center (h,k)	
Hyperbola	$\frac{(x-h)^2}{a^2} - \frac{(y-k)^2}{b^2} = 1$	foci $(h \pm c, k)$ where $c^2 = a^2 + b^2$, center (h,k)	
Hyperbola	$\frac{(y-k)^2}{a^2} - \frac{(x-h)^2}{b^2} = 1$	foci $(h, k \pm c)$ where $c^2 = a^2 + b^2$, center (h,k)	

Lines and Points

Slope	$m = \frac{y_2 - y_1}{x_2 - x_1}$	(x_1,y_1) and (x_2,y_2) are 2 points. m = slope
Midpoint	$M = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$	M = midpoint d = distance
Distance	$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$	

continued

Miscellaneous

Distance, Rate, Time: $D = rt$

Simple Interest: $I = prt$

Compound Interest: $A = p\left(1 + \frac{r}{n}\right)^{nt}$

D = distance
r = rate
t = time
I = interest
p = principal
A = amount of money after t years
n = number of times interest is compounded annually

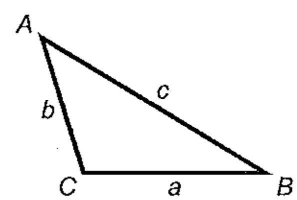
Pythagorean Theorem: $a^2 + b^2 = c^2$

a and b = legs of right triangle
c = hypotenuse

Laws of Sines and Cosines

Law of Sines: $\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$

Law of Cosines: $a^2 = b^2 + c^2 - 2bc \cos A$



Sequences, Series, and Counting

Arithmetic Sequence: $a_n = a_1 + (n - 1)d$

Arithmetic Series: $s_n = \frac{n}{2}(a_1 + a_n)$

Geometric Sequence: $a_n = a_1(r^{n-1})$

Geometric Series: $s_n = \frac{a_1 - a_1 r^n}{1 - r}$ where $r \neq 1$

Combinations: ${}_kC_m = C(k,m) = \frac{k!}{(k-m)!\,m!}$

Permutations: ${}_kP_m = P(k,m) = \frac{k!}{(k-m)!}$

a_n = n^{th} term
n = number of the term
d = common difference
s_n = sum of the first n terms
r = common ratio
k = number of objects in the set
m = number of objects selected

Circumference, Area, and Volume

Triangle: $A = \frac{1}{2}bh$

Parallelogram: $A = bh$

Trapezoid: $A = \frac{1}{2}(b_1 + b_2)h$

Circle: $A = \pi r^2$
$C = \pi d$

General Prism: $V = Bh$

Right Circular Cylinder: $V = \pi r^2 h$

Pyramid: $V = \frac{1}{3}Bh$

Right Circular Cone: $V = \frac{1}{3}\pi r^2 h$

Sphere: $V = \frac{4}{3}\pi r^3$

A = area
b = base
h = height
r = radius
C = circumference
d = diameter
V = volume
B = area of base
$\pi \approx 3.14$

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