

Alg. 2 / Trig Regents Test Sampler 4

Part III

Answer all 3 questions in this part. Each correct answer will receive 4 credits. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc. For all questions in this part, a correct numerical answer with no work shown will receive only 1 credit. [12]

- 36 Solve the equation $\cos \theta = 2 + 3 \cos 2\theta$ for all values of θ , to the nearest tenth of a degree, in the interval $0^\circ \leq \theta < 360^\circ$.

37 Express in simplest form: $\frac{3x}{2x-6} + \frac{9}{6-2x}$

38 Perform the indicated operations and express in simplest form:

$$\frac{3x^2 + 12x - 15}{x^2 + 2x - 15} \div \frac{3x^2 - 3x}{3x - x^2}$$

Part IV

Answer all questions in this part. Each correct answer will receive 6 credits. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc. For all questions in this part, a correct numerical answer with no work shown will receive only 1 credit.

- 39 The accompanying table shows wind speed and the corresponding wind chill factor when the air temperature is 10°F .

Wind Speed (mi/h) x	Wind Chill Factor ($^{\circ}\text{F}$) y
4	3
5	1
12	-5
16	-7
22	-10
31	-12

Write the logarithmic regression equation for this set of data, rounding coefficients to the *nearest ten thousandth*.

Using this equation, find the wind chill factor, to the *nearest degree*, when the wind speed is 50 miles per hour.

Based on your equation, if the wind chill factor is 0° , what is the wind speed, to the *nearest mile per hour*?