SAMPLE SECTION I [GOAL 8-10 Minutes All Correct] Score:____/10

Solve for the variable listed next to each equation in terms of other variables:

1. $E = \frac{1}{2}mv^2 + \frac{1}{2}kx^2$ For m

2. $U = \frac{Gmn}{r}$ For G

3. $\frac{1}{C^2} = \frac{1}{A^2} + \frac{1}{B^2}$ For A

4. $\frac{Q^2}{2C} = \frac{1}{2}CV^2$ For C

5. $I = \frac{emf}{R+r}$ For r

6. $U = \frac{1}{4\pi\pi} \cdot \frac{qx}{r}$ For r

Solve these equations:

7. $25 - x^2 = 21$

8. $\frac{11}{x^2-5x+6} = \frac{3}{x-2} + \frac{4}{x-3}$

9. $\frac{6}{x-4} - \frac{3}{x+4} = \frac{9}{x^2-16}$

10. $\frac{-9}{x-6} = 4 - \frac{x}{x-6}$

SAMPLE **Score:___/7**

Word Problems:

1. The vertices of a triangle are (-4,-2), (2-8) and (4,6). Without graphing, determine what kind of a triangle this. [Hint: Find the slopes between the points.]

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2. Without sketching the quadrilateral with the vertices as (-5,-2), (1,-1), (4,4) (-2,3), what can you tell about it? [Hint: Find the slopes between the points.]

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3. Without sketching show that the points (0,3), (4,1), and (-8,7) lie on the same line.

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4. What is the value of j if the line passing through (j,4) and (3, -1) is perpendicular to the line passing through (17,3) (-13,9)?

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5. What is the value of j if the line passing through (15,j) and (-3, -10) is parallel to the line passing through (1,11) (-19,0)?

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6. Find the standard equation of a line passing through (1,-7) and that is parallel to $3x+2y = 9/11$.

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7. Find the standard equation of a line passing through (-2,-2) and is perpendicular to $2x+3y = 1/6$.

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