

Exam Review – Chapter 7 and Chapter 8

Summary of Main Topics:

1. Interpreting distance-time, position-time, speed-time, and velocity-time graphs.
2. Solving, graphing, and creating linear equations and inequalities, including parallel and perpendicular lines.
3. Solving systems of equations and inequalities (substitution, elimination).
4. Solving linear programming optimization problems, and other applications that can be modeled with linear equations, inequalities, and systems.
5. Factoring polynomials using the factor by grouping method and the CFQ method.
6. Solving quadratic equations by factoring, completing the square, and the quadratic formula.
7. Find the vertex of a parabola by completing the square and by using the formula $x = -b/2a$ for the axis of symmetry.
8. Solving applications that can be modeled by quadratic functions, including finding the x-intercepts, y-intercept, and / or the vertex as needed to solve the problem at hand.

Selected problems:

Chapter 7 Test Review: (pp. 391 – 392) #1-3, 5-7, 11-13, 25-27, 29, 30, 33-35

Chapter 8 Test Review: (pp. 489 – 490) #3-6, 8, 9, 13, 14, 19, 24, 25.

Additional Problems & Topics:

7.6 Polynomials:

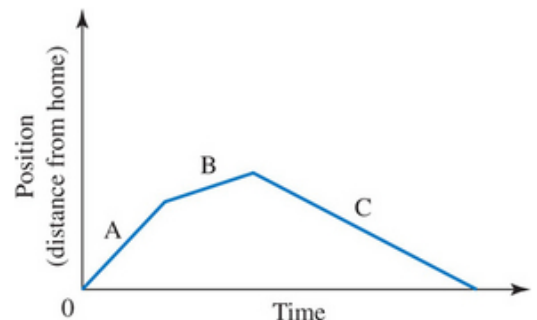
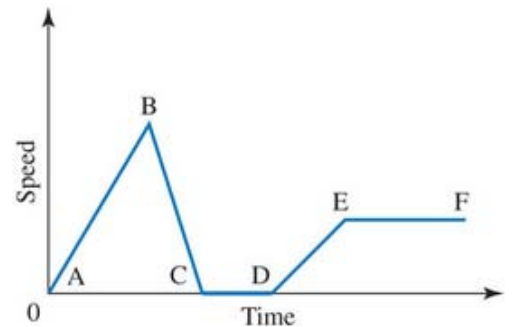
- A. Factor $8x^2 - 10x - 3$ using two different methods: 1) by grouping and 2) using the CFQ method.
- B. Determine whether or not the trinomial $6x^2 + 4x + 5$ is factorable. Is it possible to change one of the coefficients so that it will factor? (Be able to answer this two ways: What role might the discriminant ($b^2 - 4ac$) play in answering this question? What role might the product $6 \times 5 = 30$ play in answering this question?)

Solving Quadratic Equations:

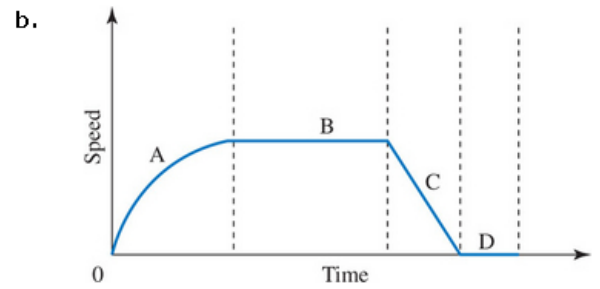
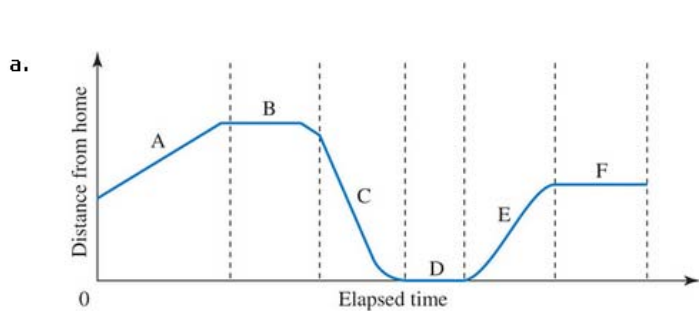
- C. Solve the equation $2x^2 - 2x - 3 = 0$ using three different methods: (1) Factor and ZPP, (2) Complete the square, and (d) Quadratic formula. Which seems to be the easiest for this particular problem?

Interpreting Graphs:

- D. Write a story that could be represented by the speed-time graph at the right.
- E. The graph at right represents Susan's position (distance from home) during her trip to the grocery store.
 - E1. During which segment of her journey did Susan walk the farthest? How do you know?
 - E2. During which segment of her journey did Susan take the longest? How do you know?
 - E3. During which segment of her journey did Susan travel the fastest? Explain why. Be sure to use distance and time in your argument. (Do not rely simply on a visual estimation of steepness.)



F. Tell a story about a journey that could be represented by each graph. Tell what happened in each lettered part of the graph. Be sure to talk about the speed represented by each part.



G. A special vase is used for the bouquet of flowers at the head table. Below is a graph indicating the height of the water in the vase as it is being filled with water at a steady rate. Make a sketch of what the vase should look like.

