

Systems of Equations



General Outcome

Develop algebraic and graphical reasoning through the study of relations.

Specific Outcomes

RF6 Solve, algebraically and graphically, problems that involve systems of linear-quadratic and quadratic-quadratic equations in two variables.

By the end of this chapter, students will be able to:

Section	Understanding Concepts, Skills, and Processes
8.1	✓ model a situation using a system of linear-quadratic or quadratic-quadratic equations
	✓ determine and verify the solution of a system of linear-quadratic or quadratic-quadratic equations graphically, with technology
	✓ explain the meaning of the points of intersection of a system of linear-quadratic or quadratic-quadratic equations
	✓ solve a problem that involves a system of linear-quadratic or quadratic-quadratic equations, and explain the strategy used
8.2	✓ model a situation using a system of linear-quadratic or quadratic-quadratic equations
	✓ relate a system of linear-quadratic or quadratic-quadratic equations to the context of a given problem
	✓ determine and verify the solution of a system of linear-quadratic or quadratic-quadratic equations algebraically
	✓ explain the meaning of the points of intersection of a system of linear-quadratic or quadratic-quadratic equations
	✓ solve a problem that involves a system of linear-quadratic or quadratic-quadratic equations, and explain the strategy used

Assessment	Supporting Learning
Assessment as Learning	
Use the Before column of BLM 8–1 Chapter 8 Self-Assessment to provide students with the big picture for this chapter and help them identify what they already know, understand, and can do. You may wish to have students keep this master in their math portfolio and refer to it during the chapter.	<ul style="list-style-type: none"> During work on the chapter, have students keep track of what they need to work on. They can check off each item as they develop the skill or process at an appropriate level.
Assessment for Learning	
<p>Method 1: Use the introduction on page 422 in <i>Pre-Calculus 11</i> to activate students' prior knowledge about the skills and processes that will be covered in this chapter.</p> <p>Method 2: Have students develop a journal entry to explain what they personally know about systems of equations and how they are used to model and solve problems.</p>	<ul style="list-style-type: none"> Have students use their list of what they need to work on to keep track of the skills and processes that need attention. They can check off each item as they develop the skill or process at an appropriate level. Students who require activation of prerequisite skills may wish to complete BLM 8–2 Chapter 8 Prerequisite Skills. This material is on the Teacher CD of this Teacher's Resource and mounted on the www.mhrprecalc11.ca book site.
Assessment as Learning	
As students work on each section in Chapter 8, have them keep track of any problems they are having.	<ul style="list-style-type: none"> As students complete each section, have them review the list of items they need to work on and check off any that have been handled. Encourage students to write definitions for the Key Terms in their own words, including reminder tips that may be helpful for review throughout the chapter. Encourage students to write examples of their own in their notebook or math portfolio. Students should have an example for each method that is covered in the chapter.
Assessment for Learning	
<p>BLM 8–3 Chapter 8 Warm-Up</p> <p>This reproducible master includes a warm-up to be used at the beginning of each section. Each warm-up provides a review of prerequisite skills needed for the section.</p>	<ul style="list-style-type: none"> As students complete questions, note which skills they are retaining and which ones may need additional reinforcement. Use the warm-up to provide additional opportunities for students to demonstrate their readiness for the chapter material. Have students share their strategies for completing mathematics calculations.

Chapter 8 Planning Chart

Section/ Suggested Timing	Prerequisite Skills	Materials/Technology	Teacher's Resource Blackline Masters	Exercise Guide	Assessment		
					Assessment as Learning	Assessment for Learning	Assessment of Learning
Chapter Opener • 30–45 min (TR page 289)			BLM 8–1 Chapter 8 Self-Assessment BLM 8–2 Chapter 8 Prerequisite Skills BLM U4–1 Unit 4 Project Checklist				
8.1 Solving Systems of Equations Graphically • 120–150 min (TR page 291)	Students should be familiar with • linear equations • quadratic equations • graphing linear and quadratic equations • solving systems of linear equations	• grid paper • graphing calculator • computer with graphing software	Master 3 0.5 Centimetre Grid Paper BLM 8–3 Chapter 8 Warm-Up BLM 8–4 Section 8.1 Extra Practice TM 8–1 How to Do Page 428 Example 2 Using TI-83/84 TM 8–2 How to Do Page 428 Example 2 Using TI-Nspire™	Essential: #1–6, 8, 9, 11, 19, 20 Typical: #1–11, one of 12–14, 20 Extension/Enrichment: #12, 15–18, 20	TR pages 294, 299	TR pages 296, 297, 299	
8.2 Solving Systems of Equations Algebraically • 100–120 min (TR page 300)	Students should be familiar with • the quadratic formula • methods for substituting and eliminating for systems of linear equations • factoring • solving quadratic equations	• grid paper • graphing calculator • computer with graphing software	BLM 8–3 Chapter 8 Warm-Up BLM 8–5 Section 8.2 Extra Practice	Essential: #1, 3a), b), d), 4a)–d), 6, 22, 24 Typical: #1, 2, 3a), c), e), 4, 6, 8, one of 10–13, 14, 16 or 17, 22, 24 Extension/Enrichment: #6, 12, 15, 20–22, 24	TR pages 301, 306	TR pages 303, 304, 306	
Chapter 8 Review • 90–120 min (TR page 307)		• grid paper • graphing calculator • computer with graphing software	Master 3 0.5 Centimetre Grid Paper BLM 8–4 Section 8.1 Extra Practice BLM 8–5 Section 8.2 Extra Practice	Have students do at least one question related to any concept, skill, or process that has been giving them trouble.		TR page 307	
Chapter 8 Practice Test • 60–90 min (TR page 308)		• grid paper • graphing calculator • computer with graphing software	Master 3 0.5 Centimetre Grid Paper BLM 8–6 Chapter 8 Test	Provide students with the number of questions they can comfortably do in one class. Choose at least one question for each concept, skill, or process. Minimum: #1, 2, 4, 5, 8, 10, 12	TR page 309		TR page 309 BLM 8–6 Chapter 8 Test
Unit 4 Project • 90–120 min (TR page 310)		• grid paper • graphing calculator • computer with graphing software	BLM U4–1 Unit 4 Project Checklist BLM 8–7 Chapter 8 BLM Answers			TR page 310	