

# Foundations of Math 11 LG 15 & 16

## Quadratic Functions & Equations

### INTRODUCTION:

Want to make the most profit for your business? Mastering Quadratic Functions & Equations can lead you to making the correct decisions toward economic success. Check out chapter 7 on page 355 to learn about the basics of Quadratic Functions & Equations.

### LEARNING GUIDE EXPECTATIONS:


On the completion of this learning guide you will be able to develop your statistical reasoning ability by:

- 1) Determining the characteristics of quadratic functions and using these characteristics to sketch their graphs.
- 2) Solving quadratic equations by graphing, by factoring and by using the quadratic formula.
- 3) Solving problems that can be modeled with quadratic functions and equations.

### EVALUATION:




You are ready to progress to the next learning guide when you can demonstrate your understanding of the above expectations. Please refer to your Foundations of Mathematics 11 Marks Record Sheet to determine the assessment.

### RESOURCES NEEDED:

 Foundations of Mathematics 11 Text and possible Internet access (<http://www.youtube.com/user/RobbWorld#g/p>).

### LEARNING ACTIVITIES:

#### **Expectation #1: Determining the characteristics of quadratic functions and using these characteristics to sketch their graphs**

1.  [Watch and take notes on instructional video on Properties of Quadratic Functions.](#)
2.  Read EXPLORE the Math on pages 358. Complete **Reflecting** on page 358-359 (A-E).
3.  In your math journal, complete the journal entry for LG15 & 16 Expectation 1 after you read the **In Summary** box on p. 359.
4. Work through FURTHER Your Understanding on page 360. Complete questions 1 to 5 on page 360.
5. Work through Example 1 on pages 361-362. Complete **Reflecting** (A-C) on page 362.

6. Work through Example 2 on pages 363-364. Complete **Your Turn** (A-C) on page 364.
7. Work through Example 3 on pages 365-366. Complete **Your Turn** on page 366.
8. Work through Example 4 on pages 366-367. Complete **Your Turn** on page 367.



9. In your math journal, complete the journal entry for LG 15 & 16 Expectation #1 after you read the **In Summary** box on p. 368.
10. Complete 1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 14 on pages 368-371.



**Expectation #2: Solving quadratic equations by graphing, by factoring and by using the quadratic formula.**



1. [Watch and take notes on instructional video on Solving Quadratics by Graphing.](#)



2. Work through Example 1 on pages 374-375. Complete **Your Turn** (A&B) on page 375.
3. Work through Example 2 on pages 376-377. Complete **Your Turn** on page 377.
4. Work through Example 3 on pages 378. Complete **Your Turn** page 378.



5. In your math journal, complete the journal entry for LG15&16 Expectation 2 after you read the **In Summary** box on p.379.
6. Complete #1, 2, 3, 4, 5, 6, 7, 8, 9 on pages 379-381.



7. [Watch and take notes on instructional video on Solving Quadratics by Factoring.](#)



8. Work through Example 1 on pages 383-384. Complete **Your Turn** (A&B) on page 384.
9. Work through Example 2 on pages 384-385. Complete **Your Turn** (A&B) on page 386.
10. Work through Example 3 on pages 386-387. Complete **Your Turn** on page 387.



11. In your math journal, complete the journal entry for LG13 Expectation 3 after you read the **In Summary** boxes on pages 390.
12. Complete #1, 2, 3, 4, 5, 6, 7, 11 & 14 on pages 391-392.



13. Work through Example 1 on pages 400-401. Complete **Reflecting** (A-E) on page 401.
14. Work through Example 2 on pages 402. Complete **Your Turn** on page 402.
15. Work through Example 3 on pages 403. Complete **Your Turn** on page 403.



16. In your math journal, complete the journal entry for LG15&16 Expectation 2 after you read the **In Summary** boxes on pages 405.
17. Complete #1, 2, 3, 4, & 7 on pages 405-406.
18. Work through Example 1 on pages 410. Complete **Your Turn** on page 410.
19. Work through Example 2 on pages 411. Complete **Your Turn** on page 412.
20. Work through Example 3 on pages 412-413. Complete **Your Turn** (A&B) on page 413.
21. In your math journal, complete the journal entry for LG15&16 Expectation 2 after you read the **In Summary** boxes on pages 416.
22. Complete 1, 2, 3, 4, 5, 6, 12 on pages 417-420.



23. [Watch and take notes on instructional video on Solving Quadratics using the Quadratic Formula.](#)

24. Work through Example 1 on pages 422-423. Complete **Reflecting A-D** on page 424.
25. Work through Example 2 on pages 424. Complete **Your Turn** on page 425.



26. Work through Example 3 on pages 425. Complete **Your Turn** on page 425.
27. In your math journal, complete the journal entry for LG15&16 Expectation 2 after you read the **In Summary** boxes on pages 427.
28. Complete 1, 2, 4, 6 on pages 427-428.



### **Expectation #3: Solving problems that can be modeled with quadratic functions and equations.**



1. [Watch and take notes on instructional video on Solving Problems Using Quadratic Models.](#)



2. Work through Example 1 on pages 431-432. Complete **Reflecting** (A-D) on page 432.
3. Work through Example 2 on pages 433. Complete **Your Turn** on page 433.
4. Work through Example 3 on pages 434. Complete **Your Turn** on page 434.
5. In your math journal, complete the journal entry for LG15&16 Expectation 3 after you read the **In Summary** boxes on pages 436.
6. Complete 1, 5, 6 on pages 436-437.



### **REVIEW AND CHALLENGE**

#### **Important Terms For This Learning Guide**

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|--|--|
| <input type="checkbox"/> quadratic relation<br><input type="checkbox"/> parabola<br><input type="checkbox"/> vertex<br><input type="checkbox"/> axis of symmetry<br><input type="checkbox"/> maximum & minimum value<br><input type="checkbox"/> quadratic equation<br><input type="checkbox"/> zero<br><input type="checkbox"/> roots | <input type="checkbox"/> quadratic formula<br><input type="checkbox"/> x intercept<br><input type="checkbox"/> y intercept<br><input type="checkbox"/> open up & open down |
|--|--|



1. Complete **PRACTISING** #1, 2, 4, 5, 7, 8, 9, 10 & 13 pages 443-444.



2. Complete #1, 2, 4, 6 and 7 Chapter Self-Test on page 440.

## **PRACTICE QUIZZES**

[Practice quiz #1](#)

[Practice quiz #2](#)

[Practice quiz #3](#)

[Practice quiz #4](#)

[Practice quiz #5](#)