

Name \_\_\_\_\_

**3-5 Lesson Master**

**Questions on SPUR Objectives**  
See Student Edition pages 216–219 for objectives.

**SKILLS** Objective D

In 1–6, find exact solutions to the equation using chunking, factoring, or both.

1.  $0 = x^4 + 3x^3 - 4x^2$

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2.  $(2y - 4)(y^2 - 1)(3y^2 - y) = 0$

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3.  $\sin a + 2 = (\sin a + 2)^2 - 6$

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4.  $e^{3z} - 4e^{2z} + 4e^z = 0$

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5.  $\log_4(p^3) + 5 = (\log_4 p)^2 - 5$

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6.  $2 \cos^2 t = -13 \sin t - 5$

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**USES** Objective I

7. You are running the marathon and currently in second place. The leader is 200 ft from the finish line and running at a constant rate of 14 ft/sec. You are 320 ft from the finish line and running at 13.5 ft/sec, but start accelerating at a rate of 0.5 ft/sec<sup>2</sup>.

a. Write expressions for  $\ell(t)$  and  $d(t)$ , the leader’s distance and your distance from the finish line, respectively, after  $t$  seconds.

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b. Solve the equation  $d(t) - \ell(t) = 0$  and explain what the answer means in context.

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c. Did you win the marathon? Explain. \_\_\_\_\_

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