Astronaut-ical Math

If astronauts do all of their homework and receive good grades, what do they receive?

To find out, determine the solutions to each quadratic equation. To reveal the answer at the bottom of the page, write the letter of each problem above its solutions.

D. $x^2 + 7x + 12 = 0$

T. $x^2 + 4x - 12 = 0$
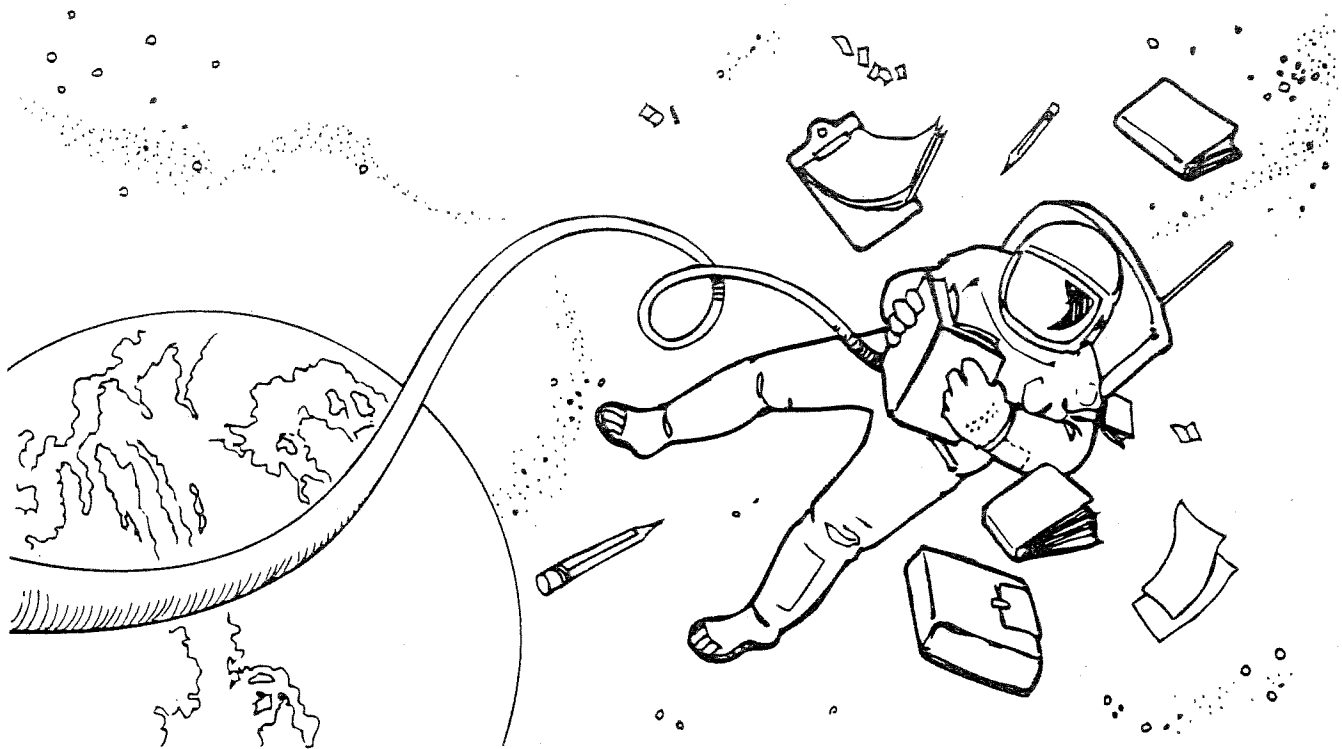
R. $2x^2 + 20x + 32 = 0$

S. $3x^2 + 9x - 12 = 0$

O. $x^2 - 7x + 6 = 0$

S. $x^2 - 5x - 24 = 0$

A. $x^2 - 8x + 12 = 0$

L. $x^2 - 2x - 15 = 0$

G. $x^2 + 6x + 8 = 0$

$x = {}^-2$ $x = 1$ $x = {}^-3$ $x = {}^-3$ $x = {}^-3$ $x = {}^-6$ $x = 2$ $x = {}^-8$ $x = {}^-4$

$x = {}^-4$ $x = 6$ $x = 5$ $x = {}^-4$ $x = 8$ $x = 2$ $x = 6$ $x = {}^-2$ $x = 1$

Practice 7-6
Mixed Exercises

Write each equation in standard form.

1. $6x^2 - x = -9$

2. $2x^2 + 8 = -3x$

3. $2x^2 = 7x - 11$

4. $x^2 + 3x = 5x + 1$

5. $8x^2 - 1 = 3x - 7$

6. $5x^2 + 16 = -5x$

7. $6 - 7x^2 = -2$

8. $-4x + 9 = -3x^2$

9. $5x + 7x^2 - 3 = -7$

Use the quadratic formula to solve each equation. Round solutions to the nearest hundredth when necessary.

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

11. $x^2 + 2x - 3 = 0$

12. $x^2 - x = 42$

13. $x^2 - 20x = -96$

14. $3x^2 + 11x - 8 = 0$

15. $3x^2 + 3x - 4 = 2$

16. $x^2 - 7x + 9 = 0$

17. $2x^2 - 22x - 52 = 0$

18. $2x^2 - x - 12 = 0$

19. $6x^2 - 24x - 192 = 0$

20. $x^2 + 5x = 66$

21. $x^2 + 4x - 437 = 0$

22. $x^2 - 20 = -2x + 60$

23. $4x^2 + 10x + 1 = 0$

24. $2x^2 + 42 = -20x$

25. $3x^2 - 15x = -10$

26. $x^2 = x - 182$

27. $7x^2 + 18x = 4$

28. $4x^2 = 28x - 72$

29. $5x^2 = 19x - 17$

30. $-6x^2 + 20 = 43x$

31. $-2x^2 = 11x - 8$

32. $3x^2 = 192$

33. $-x^2 - 15x = 56$

34. $4x^2 + 17x + 8 = 20$

35. $16x + 60 = -x^2$

36. $3x^2 + 7x = 13$

37. $15x = x^2 + 44$

38. $12x^2 = 11x - 2$

39. $x^2 - 3x + 10 = 50$

40. $x^2 - 40 = 2x + 80$

41. $-2x^2 + 8x = 3$

42. $2x^2 - 110x = -1500$

Use the quadratic formula to solve each problem.

43. You are standing on a bridge that is 64 ft above a river. You kick a small stone off the bridge into the water. After how many seconds will the stone hit the river? Use the vertical motion formula $-16t^2 + vt + s = h$.

44. The function $P = -5t^2 + 70t + 600$ models a company's profit in thousands of dollars, where t is the number of years since 1990.
    a. Estimate the company's profit in 2005.
    b. Use the function to predict in what year the company will break even.

45. You are on the roof of a building. You throw a ball into the air with a velocity of 32 ft/s. The ball is 48 ft above the ground when it leaves your hand. How many seconds will it take for the ball to reach the ground? Use the vertical motion formula $-16t^2 + vt + s = h$.