Test: Chapter 6

Test Prep VIDEO CD — *Step-by-step test solutions are found on the video CD in the front of this book.*

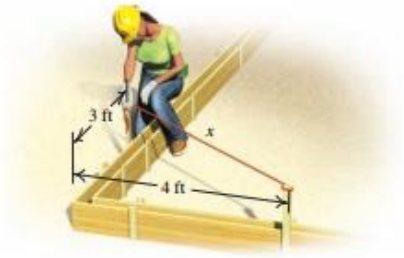
1. Find three factorizations of $12x^4$.

Factor completely. If a polynomial is prime, state this.

2. $x^2 - 13x + 36$
3. $x^2 + 25 - 10x$
4. $6y^2 - 8y^3 + 4y^4$
5. $x^3 + x^2 + 2x + 2$
6. $t^7 - 3t^5$
7. $a^3 + 3a^2 - 4a$
8. $28x - 48 + 10x^2$
9. $4t^2 - 25$
10. $x^2 - x - 6$
11. $-6m^3 - 9m^2 - 3m$
12. $3r^3 - 3$
13. $45r^2 + 60r + 20$
14. $3x^4 - 48$
15. $49t^2 + 36 + 84t$
16. $x^4 + 2x^3 - 3x - 6$
17. $x^2 + 3x + 6$
18. $4x^2 - 4x - 15$
19. $6t^3 + 9t^2 - 15t$
20. $3m^2 - 9mn - 30n^2$

Solve.

21. $x^2 - 6x + 5 = 0$
22. $2x^2 - 7x = 15$
23. $4t - 10t^2 = 0$
24. $25t^2 = 1$
25. $x(x - 1) = 20$
26. Find the x-intercepts for the graph of $y = 3x^2 - 5x - 8$.
27. The length of a rectangle is 6 m more than the width. The area of the rectangle is 40 m^2. Find the length and the width.
28. The number of possible handshakes H within a group of n people is given by $H = \frac{1}{2}(n^2 - n)$. At a meeting, everyone shook hands once with everyone else. If there were 45 handshakes, how many people were at the meeting?
29. A mason wants to be sure she has a right corner in a building's foundation. She marks a point 3 ft from the corner along one wall and another point 4 ft from the corner along the other wall. If the corner is a right angle, what should the distance be between the two marked points?



30. Cardboard is to be used to make a box with an open top. Square corners 4 cm on a side are cut out and then the sides are turned up to make a box with an open top. The volume of the box is 616 cm^3. Find the original dimensions of the cardboard.

31. Factor: $(a + 3)^2 - 2(a + 3) - 35$.
32. Solve: $20x(x + 2)(x - 1) = 5x^3 - 24x - 14x^2$.

Answers

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1. [6.1] Answers may vary. $(3x^2)(4x^2)$, $(-2x)(-6x^3)$, $(12x^3)(x)$ **2.** [6.2] $(x - 4)(x - 9)$ **3.** [6.4] $(x - 5)^2$
4. [6.1] $2y^2(2y^2 - 4y + 3)$ **5.** [6.1] $(x + 1)(x^2 + 2)$
6. [6.1] $t^5(t^2 - 3)$ **7.** [6.2] $a(a + 4)(a - 1)$
8. [6.3] $2(5x - 6)(x + 4)$ **9.** [6.4] $(2t + 5)(2t - 5)$
10. [6.2] $(x + 2)(x - 3)$ **11.** [6.3] $-3m(2m + 1)(m + 1)$
12. [6.5] $3(r - 1)(r^2 + r + 1)$ **13.** [6.4] $5(3r + 2)^2$
14. [6.4] $3(x^2 + 4)(x + 2)(x - 2)$ **15.** [6.4] $(7t + 6)^2$
16. [6.1] $(x + 2)(x^3 - 3)$ **17.** [6.2] Prime
18. [6.3] $(2x + 3)(2x - 5)$ **19.** [6.3] $3t(2t + 5)(t - 1)$
20. [6.3] $3(m - 5n)(m + 2n)$ **21.** [6.7] 1, 5
22. [6.7] $-\frac{3}{2}$, 5 **23.** [6.7] 0, $\frac{2}{5}$ **24.** [6.7] $-\frac{1}{5}$, $\frac{1}{5}$
25. [6.7] -4, 5 **26.** [6.7] $(-1, 0)$, $\left(\frac{8}{3}, 0\right)$
27. [6.8] Length: 10 m; width: 4 m **28.** [6.8] 10 people
29. [6.8] 5 ft **30.** [6.8] 15 cm by 30 cm
31. [6.2] $(a - 4)(a + 8)$ **32.** [6.7] $-\frac{8}{3}$, 0, $\frac{2}{5}$