

Algebra 2 - Assignment 27

NEW

Solve on your calculator. Round to 3 decimals.

1. $\frac{1}{4}(x^2 - 10x + 17) = 0$ $x = 2.172, 7.828$

2. $x^3 + x + 4 = 0$ $x = -1.379$

3. $2x^3 - x^2 - 18x + 9 = 0$ $x = -3, .5, 3$

4. $x^4 = 2x^3 + 1 \rightarrow x^4 - 2x^3 - 1 = 0$ $x = -.717, 2.107$
 $-2x^3 - 1$

5. $x^4 - x^3 + x - 1 = 0$ $x = -1, 1$

6. $x^4 + 5x^2 - 36 = 0$ $x = -2, 2$

7. $2x + 9\sqrt{x} - 5 = 0$ $x = .25$

8. $-\sqrt{26 - 11x} + 4 = x \rightarrow -\sqrt{26 - 11x} + 4 - x = 0$ $x = -5, 2$

9. $|x+1| = x^2 - 5 \rightarrow |x+1| - x^2 + 5 = 0$ $x = -2.562, 3$

10. $y = 27 - 4x - 12$ $x = 3.75$

11. $y = \frac{3}{2}x + \frac{1}{4}(x-2) - 10$ $x = 6$

12. $y = 3(x+3) - 5(1-x) - 1$ $x = -.375$

13. $y = \sqrt{x+3} + \sqrt{x-1} - 5$ $x = 5.41$

14. $y = \sqrt{x+5} + \sqrt{x+10} - 4$ $x = -3.109$

REVIEW

15. Solve by elimination

$$\begin{aligned} -(\frac{2}{7}x - \frac{4}{3}y) &= (16)^2 \rightarrow \frac{4}{7}x - \frac{8}{3}y = 32 \\ \frac{4}{7}x + \frac{8}{3}y &= -16 \end{aligned}$$

$$(14, -9)$$

$$\begin{aligned} \frac{4}{7}x - \frac{8}{3}y &= 32 \\ \frac{4}{7}x + \frac{8}{3}y &= -16 \\ \hline \frac{16}{8}x &= 16 \cdot \frac{7}{8} \end{aligned}$$

$$x = 14$$

$$\frac{4}{7} \cdot \frac{14}{1} + \frac{8}{3}y = 16$$

$$8 + \frac{8}{3}y = 16$$

$$\frac{3 \cdot 8}{8}y = \frac{-24}{8}$$

$$y = -9$$

16. $\sqrt{128a^4b^3} = 4 \cdot 2 \cdot a^2 \cdot b\sqrt{2b} = 8a^2b\sqrt{2b}$

17. $(2\sqrt{12})(\sqrt{32}) = 2\sqrt{12 \cdot 32} = 2 \cdot 4 \cdot 2\sqrt{3 \cdot 2} = 16\sqrt{6}$

Assignment 27 - continued

$$18. \frac{(\sqrt{3}+2)(\sqrt{3}+5)}{(\sqrt{3}-5)(\sqrt{3}+5)} = \frac{\sqrt{3}^2 + 5\sqrt{3} + 2\sqrt{3} + 10}{\sqrt{3}^2 - 25} = \boxed{\frac{13 + 7\sqrt{3}}{-22}}$$

$$19. \left(\frac{1}{32}\right)^{2/5} = \sqrt[5]{\frac{1}{32}^2} = \left(\frac{1}{2}\right)^2 = \boxed{\frac{1}{4}}$$

$$20. (-2a^{3/4})(5a^{3/2}) = (-2a^{3/4})(5a^{6/4}) = \boxed{-10a^{9/4}}$$

$$21. m^{1/3} x^{3/4} y^{5/6} = m^{4/12} x^{9/12} y^{10/12} = \boxed{\sqrt[12]{m^4 x^9 y^{10}}}$$

BOOK: pg 279 (Factor)

$$44. 6a^2 + 27a - 15 = 3(2a^2 + 9a - 5) = \boxed{3(2a - 1)(a + 5)}$$

$$64. (2x+4)(7x-1) = 14x^2 - 2x + 28x - 4 = \boxed{14x^2 + 26x - 4}$$

Page 307

$$55. \text{Seventh root of 5 cubed } \sqrt[7]{5^3} = \boxed{5^{3/7}}$$

$$56. \sqrt{3}(\sqrt{6}-2) = \sqrt{18} - 2\sqrt{3} = \boxed{3\sqrt{2} - 2\sqrt{3}}$$

Page 314

$$22. \sqrt{-49} = \boxed{7i}$$

$$28. 5i(-2i)^2 = 5i(4i^2) = 5i(-4) = \boxed{-20i}$$

$$38. 2\sqrt{18} + 3\sqrt{2} = 2 \cdot 3i\sqrt{2} + 3i\sqrt{2} = 6i\sqrt{2} + 3i\sqrt{2} = \boxed{9i\sqrt{2}}$$

$$56. (-6+2i)(7-i)(4+3i) = (-42+6i+14i-2i^2)(4+3i) \\ = (-40+20i)(4+3i) = -160-120i+80i+60i^2 \\ = \boxed{-220-40i}$$

Page 320

$$22. -2i \quad -2i(2i) = -4i^2 = \boxed{4}$$

$$26. 3+5i\sqrt{2} \quad (3+5i\sqrt{2})(3-5i\sqrt{2}) = 9 - 15i\sqrt{2} + 15i\sqrt{2} - 25i^2(2) \\ = 9 + 25(2) = 9 + 50 = \boxed{59}$$

$$32. \frac{-3i(5-4i)}{(5+4i)(5-4i)} = \frac{-15i + 12i^2}{25 - 16i^2} = \boxed{\frac{-12-15i}{41}}$$

Assignment 27 - continued

Page 320

$$34. \frac{(3+5i) \cdot (1-i)}{(1+i)(1-i)} = \frac{3-3i+5i-5i^2}{1-i+i^2-i^2} = \frac{8+2i}{1+1} = \frac{8+2i}{2} = \boxed{4+i}$$

$$54. \frac{(4+3i)^2}{(3-4i)^2} = \frac{(4+3i)(4+3i)}{(3-4i)(3-4i)} = \frac{16+12i+12i+9i^2}{9-12i-12i+16i^2} = \frac{5+24i}{-5-24i} = \frac{1(5+24i)}{-1(5+24i)} = \boxed{-1}$$

Page 307

$$4. \sqrt{3d+1} = 4^2$$

$$3d+1 = 16$$

$$\frac{3d}{3} = \frac{15}{3} \rightarrow \boxed{d=5}$$

$$16. x^{1/2} + 4 = 0$$

$$\sqrt{x} + 4 = 0$$

$$-4 = -4$$

$$-\sqrt{x} = -4 \quad \boxed{\emptyset}$$

$$18. \sqrt[3]{r-1} = 3^3$$

$$r-1 = 27$$

$$\boxed{r=28}$$

$$36. (\sqrt{x+21} - 1)^2 = \sqrt{x+12}^2$$

$$x+21 - \sqrt{x+21} - \sqrt{x+21} + 1 = x+12$$

$$x+22 - 2\sqrt{x+21} = x+12$$

$$-x - 22 \quad -x - 22$$

$$\frac{-2\sqrt{x+21}}{-2} = \frac{-10}{-2}$$

$$\sqrt{x+21} = 5^2$$

$$x+21 = 25$$

$$-21 \quad -21$$

$$\boxed{x=4}$$