

Honors Math 2

HW for Unit 1 Test 1 Review

Show your work by hand for the problems for credit!

Part I. Simplify each expression

1. $(x - 6)^2$

2. $(3x + 4)^2$

3. $(5x^4 - 3 - 5x^2) - (4 - 3x^4 + 7x)$

Part II. Solve each equation by factoring

4. $2x^2 + 5x + 3 = 0$

5. $5x^2 - 45x + 90 = 0$

6. $12d^2 - 71d - 6 = 0$

7. $2x^2 = 6x$

8. $4p^2 + 9 = 12p$

9. $16x^2 - 64 = 0$

Part III. Solve by completing the square

10. $2x^2 - 5x + 3 = 0$

11. $x^2 + 11 = -4x$

Part IV: Find the value of the discriminant and describe the nature of the roots.

12. $2x^2 + 7x - 11 = 0$

13. $2x^2 - 13x = 7$

14. $7x^2 + 6x + 2 = 0$

Part V: Solve by using the quadratic formula.

15. $3x^2 + 5x - 1 = 0$

16. $-3x^2 + 4x = 4$

17. $x^2 + 7 = 3x$

Part VI: Factor Completely

18. $x^3 - 4x^2 + 3x - 12$

19. $24x^3 - 2x^2 - 12x$

20. $x^4 - 16$

Part VII: Simplify the following Radicals

21. $\sqrt{180}$

22. $-\sqrt{-250}$

23. $2\sqrt{-18} \cdot 4\sqrt{-48}$

24. $\sqrt{\frac{7}{2}}$

Part VIII: Find the zeros of the following. Show all your work using the appropriate method.

25. $x^2 - 9x + 12 = 0$

26. $3x^2 - 54 = 0$

27. $2x^2 + 8x = 13$

28. $x^2 + 3x = 28$

Write the equation in vertex form. Then, find the vertex.

29. $y = 2x^2 - 8x + 15$

30. $y = x^2 + 12x + 16$

Part VI. Applications

31. A tennis ball is thrown upward with an initial velocity of 8 feet per second. The height of the tennis ball $h(t)$ in terms of the time t since the tennis ball was released is $h(t) = 8t - 16t^2$. How long after the ball is released does it reach the ground? Show your work.

32. International auction houses sell hundreds of oriental rugs each year to collectors from all over the world. A 17th-century Mughal carpet was recently purchased from a museum for \$253,000, despite having moth damage, corrosion, and holes. The rug has a border of uniform width depicting lilies, asters, and roses and a red center called a raspberry field. The rug is 9 ft by 15 ft, with a raspberry field of 91 square feet. If you were interested in purchasing the rug, you might want to know how wide that beautiful border is. How wide is it?

33. A rectangular prism has length three more than twice the width, x . If the volume of the prism is $6x^3 + 7x^2 - 3x$, what is the height of the prism in terms of x ?