Name Master Eq

Algebra 2 Unit 2B Remediation

Remember: The RETAKE totally replaces the test... so STUDY!!

Target 1 Remediation

Simplify each expression completely.

1. i^{71}

$i \cdot i^{68}$

$-1 \cdot 1 = -i$

2. i^{265}

$i \cdot i^{264}$

$-1 \cdot 1 = -i$

3. $\sqrt{-175}$

$\sqrt{-1 \cdot 25 \cdot 7}$

$5i\sqrt{7}$

4. $\sqrt{-5} \cdot \sqrt{-10}$

$i\sqrt{5} \cdot i\sqrt{10}$

$i^2\sqrt{50}$

$-1\sqrt{25}\cdot\sqrt{2} = -5\sqrt{2}$

5. $4(1+3i) - (5-9i)$

$4+12i-5+9i$

$-1+21i$

6. $(-2+7i)(5-i)$

$-10+2i+35i-7i^2$

$-10+37i-7(-1)$

$-3+37i$

7. $(8+2i)^2$

$(8+2i)(8+2i)$

$64+16i+16i+4i^2$

$64+32i-4$

$60+32i$

Target 2 Remediation

Solve each equation.

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

$-6, -2$

$x^2+8x+12=0$

$(x+6)(x+2)=0$

$x+6=0 \quad x+2=0$

$x=-6 \quad x=-2$

9. $\frac{7x^2}{7} = \frac{-126}{7}$

$x^2 = -18$

$x = \pm\sqrt{-18}$

$= \sqrt{-1 \cdot 9 \cdot 2}$

$x = 3i\sqrt{2}$

10. Find the discriminant of $x^2 - 6x + 2 = 0$

$b^2 - 4ac$

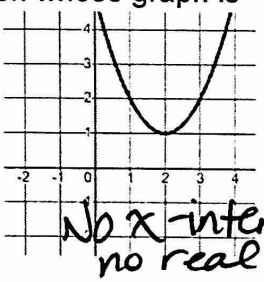
$(-6)^2 - 4(1)(2)$

$36 - 8$

$28 \Rightarrow$ 2 real irrational roots

11. Which of the following describes the nature of the roots of the function whose graph is shown.

a. 2 real rational roots
b. 1 real root (double root)
c. 2 complex roots
d. 2 real irrational roots



No x-intercept = no real roots

12. $3(x-5)^2 - 18 = 0$

$+18 \quad +18$

$\frac{3(x-5)^2}{3} = \frac{18}{3}$

$(x-5)^2 = 6$

$x - 5 = \pm\sqrt{6}$

$x = 5 \pm \sqrt{6}$

13. $x^2 - 18x - 11 = 0$

$x = \frac{18 \pm \sqrt{(-18)^2 - 4(1)(-11)}}{2} = \frac{18 \pm \sqrt{368}}{2}$

$\sqrt{368} = \sqrt{16 \cdot 23} = 4\sqrt{23}$

$\frac{18 \pm 4\sqrt{23}}{2}$

$= 9 \pm 2\sqrt{23}$

14. $10x^2 + 5x + 2 = -3$

$10x^2+5x+5=0$

$5(2x^2+x+1)=0$

$\frac{-1 \pm \sqrt{1^2-4(2)(1)}}{2(2)} = \frac{-1 \pm \sqrt{-7}}{4} = \frac{-1 \pm i\sqrt{7}}{4}$

15. $8x^2 + 40x = 0$

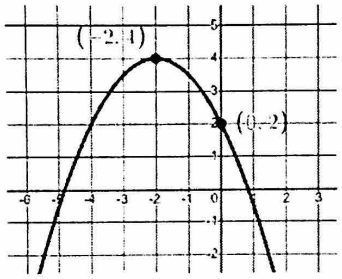
$8x(x+5)=0$

$8x=0 \quad x+5=0$

$x=0 \quad x=-5$

Target 3 Remediation

16. Write an equation for the quadratic graphed in **vertex form**.



$y = a(x+2)^2 + 4$

$-2 = a(0+2)^2 + 4$

$-2 = 4a + 4$

$-6 = 4a$

$-\frac{1}{2} = a$

$y = -\frac{1}{2}(x+2)^2 + 4$

17. Write an equation in **intercept/factored form** for the quadratic with roots at $x = \{1, 3\}$ and includes the point (4,12).

$y = a(x-1)(x-3)$

$12 = a(4-1)(4-3)$

$12 = a(3)(1)$

$12 = 3a$

$4 = a$

$y = 4(x-1)(x-3)$

18. Write an equation in **standard form** for the quadratic with a vertex at (-1, 4) and a y-intercept at (0,3).

$y = a(x+1)^2 + 4$

$3 = a(1)^2 + 4$

$3 = a + 4$

$-1 = a$

$y = -(x+1)^2 + 4$

$= -(x^2 + 2x + 1)$

$= -x^2 - 2x - 1 + 4$

$y = -x^2 - 2x + 3$

Target 4 Remediation

19. What are the solutions to the system?

$y = (x-3)^2 - 2$

$y = -2x + 4$

$-2x + 4 = (x-3)^2 - 2$

$-2x + 4 = x^2 - 6x + 9 - 2$

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

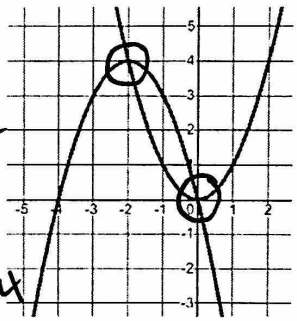
$0 = (x-3)(x-1)$

$x = 3 \quad y = -2(3) + 4 \quad y = -6 + 4 = -2$

$x = 1 \quad y = -2(1) + 4 \quad -2 + 4 = 2$

$(3, -2) \quad (1, 2)$

20. Circle the solutions to the system.

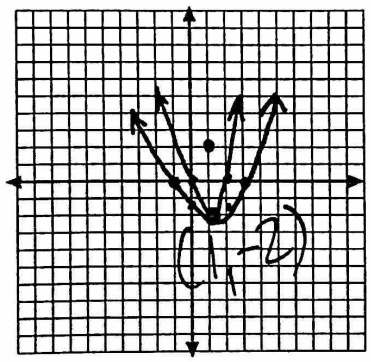


$y = -2x + 4$

21-22 Solve each system graphically.

21. $y = .5(x-1)^2 - 2$

$y = 2x^2 - 4x = 2x(x-2)$

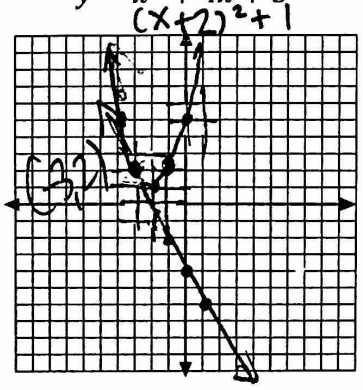


The solution is: $(1, -2)$

22. $-2x - y = 4$

$y = x^2 + 4x + 5$

$(x+2)^2 + 1$



The solution is: $(-3, 2)$

23. Solve algebraically.

$y = x^2 - 8x + 11$

$-x + y = 3 \quad y = x + 3$

$x + 3 = x^2 - 8x + 11$

$0 = x^2 - 9x + 8$

$0 = (x-8)(x-1)$

$x - 8 = 0 \quad x - 1 = 0$

$x = 8 \quad x = 1$

$y = 8 + 3 = 11 \quad y = 1 + 3 = 4$

$(8, 11) \quad (1, 4)$