Name Key Date Period

IM3: Review of Solving

Solve by factoring.

1. $x^2 - 5x - 36 = 0$

$(x-9)(x+4)=0$

$x=9$ $x=-4$

2. $3x^2 + 14x - 5 = 0$

$(3x-1)(x+5)=0$

$x=\frac{1}{3}$ $x=-5$

3. $4x^2 - 49 = 0$

$(2x-7)(2x+7)=0$

$x=\frac{7}{2}$ $x=-\frac{7}{2}$

4. $2x^2 - 9x = -9$

$(2x-3)(x-3)=0$

$x=\frac{3}{2}$ $x=3$

5. $x^2 - 100 = 0$

$(x-10)(x+10)=0$

$x=10$ $x=-10$

6. $6x^2 + 13x - 5 = 0$

$(3x-1)(2x+5)=0$

$x=\frac{1}{3}$ $x=-\frac{5}{2}$

Solve each quadratic equation by Factoring, Using Square Roots, or the Quadratic Formula.

7. $x^2 - 64 = 0$

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

$x=8$ $x=-8$

8. $8x^2 - 2x - 18 = -15$

$8x^2-2x-3=0$

$(2x+1)(4x-3)=0$

$x=-\frac{1}{2}$ $x=\frac{3}{4}$

9. $x^2 + 3x = 40$

$x^2+3x-40=0$

$(x+8)(x-5)=0$

$x=-8$ $x=5$

10. $2x^2 + 3x + 1 = 0$

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

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

11. $2x^2 - 6 = -x$

$2x^2+x-6=0$

$(2x-3)(x+2)=0$

$x=\frac{3}{2}$ $x=-2$

12. $3x^2 + 6x - 42 = 0$

$x=\frac{-6\pm\sqrt{36-4(3)(-42)}}{2(3)}$

$x=\frac{-6\pm\sqrt{540}}{6}$

$x=\frac{-6\pm 6\sqrt{15}}{6}$ $x=-1\pm\sqrt{15}$

13. $(x-3)^2 + 7 = 39$

$(x-3)^2=32$

$x-3=\pm\sqrt{32}$

$x-3=\pm 4\sqrt{2}$

$x=3\pm 4\sqrt{2}$

14. $5 + 6x^2 = 113$

$6x^2=108$

$x^2=18$

$x=\pm\sqrt{18}$

$x=\pm 3\sqrt{2}$

15. $(x-5)^2 = 81$

$x-5=\pm 9$

$x-5=9$ $x-5=-9$

$x=14$ $x=-4$

For #16-18, Find the discriminant. Use this to find the number of real zeros for each equation. Do NOT solve. b^2-4ac

16. $2x^2 - 3x + 1 = 0$

$9-4(2)(1)$

1 — 2 real solutions

17. $x^2 + 4x = -7$

$x^2+4x+7=0$

$16-4(1)(7)$

-12 — 2 imaginary solutions

18. $x^2 + 9 = 6x$

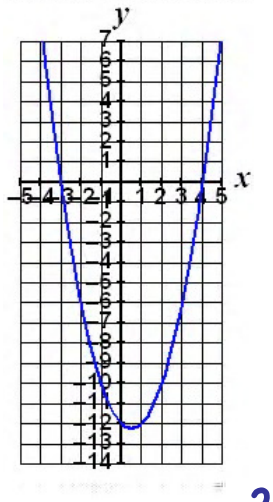
$x^2-6x+9=0$

$36-4(1)(9)$

0 — 1 real solution

For #19-20, a quadratic function and its graph are shown. Identify the solutions, or roots, of the related quadratic equation.

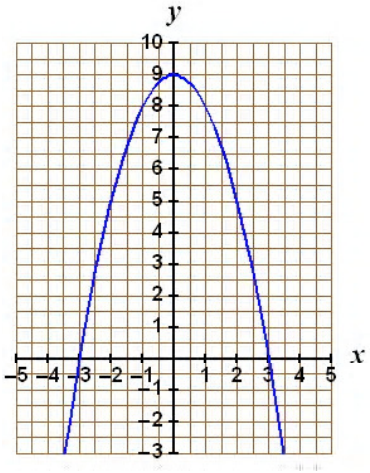
19. $f(x) = x^2 - x - 12$



Solve: $x =$ -3 or 4

20. $y = -x^2 + 9$

$y=x^2-9$



$x=-3$ $x=3$

21. Explain why $x^2 + 81 = 0$ DOES NOT have a real solution.

The vertex is at (0,81) and it opens up so it does not cross the x-axis or use the discriminant.

22. Which method can't you use to solve this problem? $x^2 - 47 = 0$

Circle one: Factoring Square Roots Quadratic Formula

Explain why: There are not 2 #'s that multiply to -47 and add to zero.

23. Which method can't you use to solve this problem? $x^2 + 7x = 0$

Circle one: Factoring Square Roots Quadratic Formula

Explain why: The x term prevents you using square roots.

24. Which method can you use to solve all quadratic equations?

Circle one: Factoring Square Roots Quadratic Formula

Explain why: All quadratics have an a, b, & c value.

25. Identify the **two mistakes** in setting up the quadratic formula. What are the correct solutions?

Solve: $2x^2 - x - 6 = 0$

should be opp. of b

$\frac{-1\pm\sqrt{(-1)^2-4(2)(6)}}{2(2)}$ ← c=-6

$\frac{1\pm\sqrt{1-4(2)(-6)}}{2(2)}$

$=\frac{1\pm\sqrt{49}}{4}$

$\frac{1+7}{4}=2$

$\frac{1-7}{4}=-3/2$