Algebra 2 - Task 2.6 Name_____ ID: 1

Solving Quadratics - All Methods

Date_____ Period____

Solve using the Quadratic Formula - Level 2

1) $n^2 + 9n + 11 = 0$

2) $5p^2 - 125 = 0$ $\{\pm 5\}$

3) $m^2 + 5m + 6 = 0$

4) $2x^2 - 4x - 30 = 0$ $\{5, -3\}$

Solve using the Quadratic Formula - Level 3

5) $b^2 - 12b + 10 = -10$

6) $6r^2 - 5r - 4 = 7$ $\{11/6, -1\}$

7) $7x^2 - 16 = 6$

8) $6n^2 - 10n - 16 = 3$ $\left\{\frac{5 \pm \sqrt{139}}{6}\right\}$

Solve using the Quadratic Formula - Level 4

9) $4a^2 - 22 = -10a$

10) $n^2 - 45 = 12n$ $\{15, -3\}$

11) $5v^2 - 2 - v = -v$

12) $4x^2 - 5x - 3 = 2x^2$ $\{3, -1/2\}$

Solve by Factoring - Level 2

13) $p^2 + 6p + 5 = 0$

14) $k^2 - 8k = 0$ $\{0, 8\}$

15) $x^2 - 7x = 0$

16) $a^2 + 5a = 0$ $\{0, -5\}$

Solve by Factoring - Level 3

17) $6n^2 + 5n - 25 = 0$

18) $2x^2 - 11x - 21 = 0$ $\{-3/2, 7\}$

19) $10r^2 + 75r + 140 = 0$

20) $60m^2 + 4m - 160 = 0$ $\{8/5, -5/3\}$

Solve by Factoring - Level 4

21) $4x^2 - 17x + 10 = -5$

22) $2n^2 + 13n + 19 = 4$ $\{-3/2, -5\}$

23) $5v^2 + 3 = -16v$

24) $20b^2 - 40b = 25$ $\{5/2, -1/2\}$

Solve by completing the square - Level 2

25) $a^2 + 8a + 11 = 0$

26) $k^2 - 14k - 19 = 0$

27) $n^2 + 16n - 17 = 0$

28) $x^2 - 20x + 64 = 0$

Solve by completing the square - Level 3

29) $x^2 + 20x + 70 = 6$

30) $x^2 + 12x + 30 = -5$

31) $7n^2 - 14n - 73 = 9$

32) $9m^2 + 18m - 8 = 5$

Solve by completing the square - Level 4

33) $6x^2 - 48 = -12x$

34) $3p^2 = -12p - 9$

35) $5n^2 + 19n = 3n + 92 - 3n^2$

36) $2b^2 + 17b = 14 + 5b$

Homework 1.4 # 2-24 even

2. $5p^2-125=0$ $a=5$ $b=0$ $c=-125$

$$x=\frac{0\pm\sqrt{0^2-4(5)(-125)}}{2(5)}=\frac{0\pm\sqrt{2500}}{10}=\frac{0\pm50}{10}=\{\pm5\}$$

4. $2x^2-4x-30=0$ $a=2$ $b=-4$ $c=-30$ $\{5,-3\}$

$$x=\frac{4\pm\sqrt{(4)^2-4(2)(-30)}}{2(2)}=\frac{4\pm\sqrt{256}}{4}=\frac{4\pm16}{4}$$

$$x=\frac{4+16}{4}=\frac{20}{4}=5 \qquad x=\frac{4-16}{4}=\frac{-12}{4}=-3$$

6. $6x^2-5x-11=0$ $a=6$ $b=-5$ $c=-11$ $\{11/6,-1\}$

$$x=\frac{5\pm\sqrt{(-5)^2-4(6)(-11)}}{2(6)}=\frac{5\pm\sqrt{289}}{12}=\frac{5\pm17}{12}$$

$$x=\frac{5+17}{12}=\frac{22}{12}=\frac{11}{6} \qquad x=\frac{5-17}{12}=\frac{-12}{12}=-1$$

8. $6x^2-10x-19=0$ $a=6$ $b=-10$ $c=-19$

556
4 139
2 2

$$x=\frac{10\pm\sqrt{(10)^2-4(6)(-19)}}{2(6)}=\frac{10\pm\sqrt{556}}{12}=\frac{10\pm2\sqrt{139}}{12}$$

$$x=\frac{5\pm1\sqrt{139}}{6} \qquad \left\{\frac{5+\sqrt{139}}{6},\frac{5-\sqrt{139}}{6}\right\}$$

10. $x^2-12x-45=0$ $a=1$ $b=-12$ $c=-45$ $\{15, -3\}$

$x=\frac{12\pm\sqrt{(12)^2-4(1)(-45)}}{2(1)}=\frac{12\pm\sqrt{324}}{2}=\frac{12\pm18}{2}$

$x=\frac{12+18}{2}=\frac{30}{2}=15$ $x=\frac{12-18}{2}=\frac{-6}{2}=-3$

12. $2x^2-5x-3=0$ $a=2$ $b=-5$ $c=-3$ $\{3, -1/2\}$

$x=\frac{5\pm\sqrt{(-5)^2-4(2)(-3)}}{2(2)}=\frac{5\pm\sqrt{49}}{4}=\frac{5\pm7}{4}$

$x=\frac{5+7}{4}=\frac{12}{4}=3$ $x=\frac{5-7}{4}=\frac{-2}{4}=\frac{-1}{2}$

14. $k^2-8k=0$

$k(k-8)=0$

$k=0$ $k=8$

16. $a^2+5a=0$

$a(a+5)=0$

$a=0$ $a=-5$

18. $2x^2-11x-21=0$

$(2x^2-14x+3x-21)=0$

$2x(x-7)\ 3(x-7)=0$

$2x+3=0$ $x-7=0$

$x=\frac{-3}{2}$ $x=7$

20. $60x^2+4x-160=0$

$15x^2+1x-40=0$

$(15x^2+25x-24x-40)=0$

$5x(3x+5)-8(3x+5)=0$

$5x-8=0$ $3x+5=0$

$x=8/5$ $x=-5/3$

22. $2n^2+13n+15=0$

$(2n^2+10n+3n+15)=0$

$2n(n+5)\ 3(n+5)=0$

$2n+3=0$ $n+5=0$

$n=-3/2$ $n=-5$

24. $20x^2-40x-25=0$

$4x^2-8x-5=0$

$(4x^2+2x-10x-5)=0$

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

$2x+1=0$ $2x-5=0$

$x=-1/2$ $x=5/2$