1. $(3n-2)(4n+1)=0$ if either factor equals zero, the product equals zero.

$3n-2=0$

$3n=2$

$n=\frac{2}{3}$ fraction preferred

$4n+1=0$

$4n=-1$

$n=-\frac{1}{4}$ fraction preferred

Kuta Software - Infinite Algebra 2

Name Key

Date_____ Period____

Solving Quadratic Equations By Factoring

Solve each equation by factoring.

answers were rewritten only to be seen better on projector.

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

$\left\{\frac{2}{3}, -\frac{1}{4}\right\}$

$\frac{2}{3} = .\overline{6}$ $-\frac{1}{4} = -.25$

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

$\{3, 0\}$

3, 0

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

$\left\{\frac{1}{5}, -1\right\}$

$\frac{1}{5} = .2$ -1

4) $(n+2)(2n+5)=0$

$\left\{-2, -\frac{5}{2}\right\}$

-2, $-\frac{5}{2}$ -2.5

5) $3k^2+72=33k$

$\{3, 8\}$

3, 8

6) $n^2=-18-9n$

$\{-6, -3\}$

-6, -3

7) $7v^2-42=-35v$

$\{-6, 1\}$

-6, 1

8) $k^2=-4k-4$

$\{-2\}$

-2

9) $-2v^2-v+12=-3v^2+6v$

$\{3, 4\}$

3, 4

10) $-4n^2+6n-16=-5n^2$

$\{2, -8\}$

2, -8

11) $8r^2 + 3r + 2 = 7r^2$

$\{-2, -1\}$

$-2, -1$

12) $b^2 + b = 2$

$\{-2, 1\}$

$-2, 1$

13) $10n^2 - 35 = 65n$

$\left\{-\frac{1}{2}, 7\right\}$

$-\frac{1}{2}, 7$

14) $3x^2 - 8x = 16$

$\left\{-\frac{4}{3}, 4\right\}$

$-\frac{4}{3} = -1.\overline{3}, 4$

15) $16n^2 - 114n = -14$

$\left\{\frac{1}{8}, 7\right\}$

$\frac{1}{8} = .125, 7$

16) $28n^2 = -96 - 184n$

$\left\{-\frac{4}{7}, -6\right\}$

$\frac{-4}{7}, -6$

17) $7a^2 + 32 = 7 - 40a$

$\left\{-\frac{5}{7}, -5\right\}$

$-\frac{5}{7}, -5$

18) $42x^2 - 69x + 20 = 7x^2 - 8$

$\left\{\frac{7}{5}, \frac{4}{7}\right\}$

$\frac{7}{5}, \frac{4}{7}$

Critical thinking questions. True/False.

19) If a quadratic equation can be factored and each factor contains only real numbers then there cannot be an imaginary solution.

True T

20) If a quadratic equation cannot be factored then it will have at least one imaginary solution.

False (Example, $x^2 = 10$) F

pg. 266 # 20-30 even w/ graphing calculator

20. graph $y = x^2 + 5x + 3$

2nd CALC
2: zero
move blinking x left of the left x-int.
ENTER
move blinking x right of the left x-int.
ENTER ENTER (-4.3, 0)

→ repeat these steps for the right x-intercept (-0.7, 0)

22. $2x^2 - x = 2$ make the equation equal zero first.

$2x^2 - x - 2 = 0$. Then graph & 2nd CALC. to find zeros.

Answers for Lesson 5-5, pp. 266–268 Exercises

1. $-4, -2$
2. $3, 6$
3. $-1, \frac{3}{2}$
4. 5
5. $-2, -1$
6. $-\frac{2}{3}, 6$
7. $-4, 4$
8. $-2, 2$
9. $-4, 4$
10. $-\frac{5}{3}, \frac{5}{3}$
11. $-\sqrt{5}, \sqrt{5}$
12. $-2\sqrt{2}, 2\sqrt{2}$
13. $0, 4$
14. $-\frac{2}{3}, 0$
15. $-\frac{7}{2}, \frac{7}{2}$
16. $-4, 4$
17. $-1, \frac{3}{2}$
18. $-2\sqrt{5}, 2\sqrt{5}$
19. a. about 6.61 s
    b. about 6.89 s
20. $-4.30, -0.70$
21. $-1.32, 8.32$
22. $-0.78, 1.28$
23. $-1.67, -1.5$
24. $-0.59, 2.26$
25. $-0.94, 2.34$
26. $-5.53, 0.36$
27. $-1, 0.25$
28. $-3.12, 5.12$
29. $-1.46, 5.46$
30. $-5.16, 1.16$
31. $-1.16, 2.16$
32. a. Answers may vary. Sample: $\frac{\ell}{w} \approx \frac{7.2 \text{ cm}}{4.4 \text{ cm}} \approx 1.6$
    b. the tree trunk
33. a. $\frac{5\sqrt{10}}{9}$ or about 1.76 s
    b. $\frac{10\sqrt{10}}{3}$ or about 10.54 s
34. Check students' work.
35. 3 ft
36. $-10, 4$
37. $3, 8$
38. $-3, 3$
39. $-\frac{1}{2}, 3$
40. $-8.69, 0.69$
41. $-\frac{3}{2}, -\frac{2}{3}$
42. $-4, \frac{5}{2}$
43. $-5.89, 5.89$
44. $-3.25, 0.92$
45. $-3.58, 3.58$
46. $-4, 0$
47. $1, 7$

/25