Name: Key Class: _____ Date: _____ ID: A

Algebra 2 - Part 1 Practice Test

Short Answer

Solve the equation using square roots.

1. $x^2 + 20 = 4$

$x^2 = -16$

$x = \pm 4i$

Solve the equation.

2. $-8n(10n - 1) = 0$

$-8n = 0$ $\quad n = 0$

$10n - 1 = 0$ $\quad n = \frac{1}{10}$

Find the number of real number and complex solutions for the equation.

3. $x^2 - 18 = 0$

$b^2 - 4ac$ $\quad 0 - 4(1)(-18) = +72$ $\quad$ 2 ℝ

4. $x^2 + 5x + 7 = 0$

$25 - 4(1)(7) = 24 - 28 = -4$ $\quad$ 2 imaginary (2 ℂ)

Solve the equation by factoring.

5. $3z^2 + 3z - 6 = 0$

$3(z^2 + 1z - 2) = 0$

$3(z + 2)(z - 1) = 0$

~~3 ≠ 0~~

$z + 2 = 0$ $\quad z = -2$

$z - 1 = 0$ $\quad z = 1$

6. $6x^2 - 17x + 13 = 20x^2 - 32$

$0 = 14x^2 + 17x - 45$

-630

$-18 \cdot 35$

$14x^2$	$-18x$
$35x$	-45

$7x - 9$

$(7x - 9)(2x + 5) = 0$

$x = \frac{9}{7}$ $\quad x = -\frac{5}{2}$

7. Find the value of n such that $x^2 + 4x + n$ is a perfect square trinomial.

$\left(\frac{4}{2}\right)^2 = 2^2 = 4$

$n = 4$

Name: _____ ID: A

Use the quadratic formula to solve the equation. If neccessary, write in simplified radical form.

8. $2a^2 - 46a + 252 = 0$

$x = \frac{46 \pm \sqrt{46^2 - 4(2)(252)}}{2(2)}$

$x = \frac{46 \pm \sqrt{100}}{4} \rightarrow \frac{46 \pm 10}{4} \rightarrow \frac{56}{4} = 14, \frac{36}{4} = 9$

Solve the equation by completing the square. If neccessary, write in simplified radical form.

9. $x^2 - 6x - 20 = 0$

$x^2 - 6x + 9 = 20 + 9$

$\left(\frac{-6}{2}\right)^2$

$(x-3)^2 = 29$

$x - 3 = \pm\sqrt{29}$

$x = 3 \pm \sqrt{29}$

Use any method to solve the equation. If neccessary, write in simplified radical form.

10. $8x^2 - 6 = 0$

$\frac{8x^2}{8} = \frac{6}{8}$

$x^2 = \frac{6}{8} = \frac{3}{4}$

$\sqrt{x^2} = \sqrt{\frac{3}{4}} \rightarrow x = \frac{\pm\sqrt{3}}{2}$

Factor the expression.

11. $-15x^2 - 21x$

$-3x(5x + 7)$

12. $8x^2 + 12x - 16$

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

$-8, 4 \cdot 2$

$+3$

13. $x^2 + 14x + 48$

$(x+6)(x+8)$

14. $3x^2 + 26x + 35$

$(x+7)(3x+5)$

	x	7
$3x$	$3x^2$	$21x$
5	$5x$	35

$3 \cdot 35 = 105$

$+ 26$

15. $16x^2 + 40x + 25$

$(4x+5)^2$

16. $9x^2 - 16$

$(3x-4)(3x+4)$

Name: _____ ID: A

Reasoning and Writing in Math

Which method(s) would you choose to solve the equation? Justify your reasoning.

17. $3x^2 - 27 = 0$

Sq Root b/c there is no 'b' value

answers vary

18. **Evaluate the discriminant of the equation.**
State the type and how many real or complex solutions each have?

18. $3x^2 - 27 = 0$

$0^2 - 4(3)(-27)$
$324 \rightarrow 2\,\mathbb{R}$

19. $3x^2 + 5x - 27 = 0$

$25 - 4(3)(-27)$
$349 \rightarrow 2\,\mathbb{R}$

20. $x^2 + 6x - 27 = 0$

$36 - 4(1)(-27) \rightarrow 144 \rightarrow 2\,\mathbb{R}$