

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

$-8n = 0$        $10n - 1 = 0$   
 $n = 0$                $n = \frac{1}{10}$

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

3.  $x^2 - 18 = 0$

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

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

$25 - 4(1)(7) = 25 - 28 = -4$        $2 \text{ imaginary}$   
 $(2C)$

Solve the equation by factoring.

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

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

~~3=0~~  
 $z+2=0$        $z-1=0$   

$z = -2$	$z = 1$
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6.  $6x^2 - 17x + 13 = 20x^2 - 32$

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

$-4 \cdot 30$   
 $-18 \cdot 35$

$(7x-9)(2x+5) = 0$   
 $x = \frac{9}{7}$        $x = -\frac{5}{2}$

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

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

$n = 4$

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

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

$(\frac{-b}{2})^2$   $(X-3)^2 = 29$   $X-3 = \pm\sqrt{29}$   $X = 3 \pm \sqrt{29}$

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

10.  $8x^2 - 6 = 0$   $\frac{8x^2}{8} = \frac{6}{8}$   $x^2 = \frac{6}{8} = \frac{3}{4}$

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

Factor the expression.

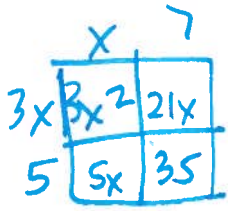
11.  $-15x^2 - 21x$   
 $-3x(5x + 7)$

12.  $8x^2 + 12x - 16$   
 $4(2x^2 + 3x - 4)$



13.  $x^2 + 14x + 48$   
 $(x+6)(x+8)$

14.  $3x^2 + 26x + 35$   
 $(x+7)(3x+5)$



$3 \cdot 35 = 105$   
 $+ 26$

15.  $16x^2 + 40x + 25$   
 $(4x+5)^2$

16.  $9x^2 - 16$   
 $(3x-4)(3x+4)$

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

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

