

Solve using the quadratic formula:

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

$$\frac{-(-3) \pm \sqrt{(-3)^2 - 4(2)(2)}}{2(2)}$$

$$\frac{3 \pm \sqrt{9 - 16}}{4} = \frac{3 \pm i\sqrt{7}}{4}$$

18. $x^2 + 4x = 2$

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

$$\frac{-4 \pm \sqrt{(4)^2 - 4(1)(-2)}}{2(1)} = \frac{-4 \pm \sqrt{24}}{2} = -2 \pm \sqrt{6}$$

Find the discriminant and use it to determine if the equation has one real, two real, or two imaginary root(s).

19. $x^2 + 4x + 3 = 0$

$a=1$ $b=4$ $c=3$ 4; 2 reals

$$(4)^2 - 4(1)(3) = 16 - 12 = 4$$

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

$a=1$ $b=-2$ $c=4$ -12; 2 imaginary

$$(-2)^2 - 4(1)(4) = 4 - 16 = -12$$

21. $x^2 - 2x + 1 = 0$

$(-2)^2 - 4(1)(1) = 4 - 4 = 0$ 0; 1 Real

22. $3x^2 + 2x - 1 = 0$

$(2)^2 - 4(3)(-1) = 4 + 12 = 16$ 16; 2 reals

Solve by factoring:

23. $x^2 + 2x - 3 = 0$

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

24. $8a^2 - 2a = 7a^2 + 42 - a$

$a^2 - a - 42 = 0$ a = 7, a = -6

25. $3x^2 - 10x + 3 = 0$

$(x-3)(3x-1) = 0$
x = 3 ; x = 1/3

26. $32x^2 - 3x - 14 = (2x-1)^2 \rightarrow (2x-1)(2x+1)$

$28x^2 + x - 15 = 0$ x = -3/4
x = 5/7

Find the missing information with the following

27. The length of a rectangle is 5 cm more than its width and the area is 50 cm². Let the width be x. Then the length = x + 5.

Find the length, width and the perimeter.

L = x + 5 = 10
W = x = 5
P = 30 cm

$$50 = (x+5)(x)$$

$$50 = x^2 + 5x$$

$$x^2 + 5x - 50 = 0$$

$$(x+10)(x-5) = 0$$

~~x = 10~~ ~~x = 5~~

28. The three sides of a right triangle are x, x+1 and 5.

Find x and the area, if the longest side is 5. The hypotenuse = 5

Area of Δ
 $A = \frac{1}{2}bh$
 $A = \frac{1}{2}(3)(4)$
A = 6

$$(x+1)^2 + (x)^2 = 5^2$$

$$x^2 + 2x + 1 + x^2 = 25$$

$$2x^2 + 2x - 24 = 0$$

$$2(x^2 + x - 12) = 0$$

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

~~x = -4~~ x = 3

A Homework 16 Review	Unit 1
Factor the following:	
1. $x^2 - 64$ $(x-8)(x+8)$	2. $\frac{81v^4}{9v^2} - \frac{900v^2}{9v^2} = 9v^2(3v-10)(3v+10)$ $9v^2(9v^2 - 100)$
3. $x^2 - 9x + 14$ $\hat{-7} \quad \hat{-2}$ $(x-7)(x-2)$	4. $x^2 - 7x + 6$ $\hat{-6} \quad \hat{+1}$ $(x-6)(x-1)$
5. $x^2 + 7x + 6$ $\hat{6} \quad \hat{1}$ $(x+6)(x+1)$	6. $x^2 - 6x - 40$ $\hat{-10} \quad \hat{4}$ $(x-10)(x+4)$
7. $2x^2 + x - 1$ $\hat{-2} \quad \hat{2-1}$ $(2x^2 + 2x) - 1(x-1)$ $2x(x+1) - 1(x+1)$ $(2x-1)(x+1)$	8. $3x^2 - 11x - 42$ $\hat{-18} \quad \hat{7}$ $(3x^2 - 18x) + (7x - 42)$ $3x(x-6) + 7(x-6)$ $(3x+7)(x-6)$
9. $28x^3 + 156x^2 + 80x$ $4x(7x^2 + 39x + 20)$ $140 \quad 4x(7x^2 + 35x) + 4x + 20$ $35 \quad 4x[7x(x+5) + 4(x+5)]$ $= 4x(7x+4)(x+5)$	10. $3x^2 - 7x - 10$ $\hat{-30} \quad \hat{-10} \quad \hat{3}$ $(3x^2 + 3x) - 10(x+10)$ $3x(x+1) - 10(x+1)$ $(3x-10)(x+1)$
Solve by taking the square root:	
11. $\frac{7v^2}{7} = \frac{42}{7}$ $\sqrt{v^2} = \sqrt{6}$ $v = \pm\sqrt{6}$	12. $\frac{36p^2}{36} = \frac{25}{36}$ $\sqrt{p^2} = \sqrt{\frac{25}{36}}$ $p = \pm\frac{5}{6}$
13. $x^2 - 19 = 0$ $\sqrt{x^2} = \sqrt{19}$ $x = \pm\sqrt{19}$	14. $2x^2 + 388 = 0$ $\frac{2x^2}{2} = -\frac{388}{2}$ $\sqrt{x^2} = \sqrt{194}$ $x = \pm i\sqrt{194}$
15. $\frac{4(x+5)^2}{4} = -\frac{64}{4}$ $\sqrt{(x+5)^2} = \sqrt{-16}$ $x+5 = 4i$ $x = -5 + 4i$ $x+5 = -4i$ $x = -5 - 4i$	16. $\frac{5(x-4)^2}{5} = \frac{125}{5}$ $\sqrt{(x-4)^2} = \sqrt{25}$ $x-4 = 5$ $x = 9$ $x-4 = -5$ $x = -1$
$x = -5 + 4i$	$x = 9$
$x = -5 - 4i$	$x = -1$