

Simplify.

1.  $(6 + 3i) + (4 - 5i)$

$10 - 2i$

2.  $(3i)(-8i)$

$-24i^2$   
 $24$

3.  $(-2 - 5i) - (7 + 4i)$

$-9 - 9i$

4.  $(3 + 3i)(2 - 5i)$

$6 - 15i + 6i - 15i^2$   
 $6 - 9i + 15$   
 $21 - 9i$

5.  $6 + \sqrt{-16}$

$6 + 4i$

Factor completely.

6.  $6x^2 + 18x$

$6x(x + 3)$

7.  $3x^2 - 12x + 3$

$3(x^2 - 4x + 1)$

8.  $x^2 - 12x + 24$

can't factor

9.  $t^2 + t - 20$

$(t + 5)(t - 4)$

10.  $x^2 - 64$

$(x + 8)(x - 8)$

11.  $81a^2 - 25b^2$

$(9a - 5b)(9a + 5b)$

12.  $x^4 - 36$

$(x^2 - 6)(x^2 + 6)$

13.  $5x^2 + 11x - 12$

$5x^2 + 15x - 4x - 12$

$5x(x + 3) - 4(x + 3)$

$(5x - 4)(x + 3)$

Solve by factoring.

14.  $16x^2 - 81 = 0$

$(4x - 9)(4x + 9) = 0$

$x = \frac{9}{4}$

$x = -\frac{9}{4}$

15.  $x^3 - 4x^2 = 45x$

$x^3 - 4x^2 - 45x = 0$

$x(x^2 - 4x - 45) = 0$

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

$x = 0 \quad x = 9 \quad x = -5$

Solve by using the Quadratic Formula. Round the solutions to the nearest hundredth.

16.  $2x^2 = 5x + 9$

$2x^2 - 5x - 9 = 0$

$$x = \frac{5 \pm \sqrt{(-5)^2 - 4(2)(-9)}}{2(2)} = \frac{5 \pm \sqrt{25 + 72}}{4} = \frac{5 \pm \sqrt{97}}{4} = \frac{5 \pm 9.85}{4}$$

$\frac{5 + 9.85}{4} = 3.71$   
 $\frac{5 - 9.85}{4} = -1.21$

Find the discriminant.

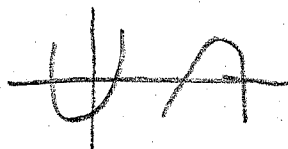
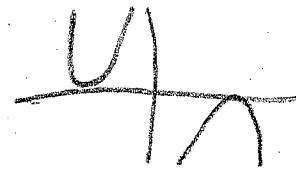
17.  $5x^2 - 3x + 1 = 0$   $b^2 - 4ac$

$(-3)^2 - 4(5)(1)$

$9 - 20$

$-11$

18. Complete the chart. (See p. 288.)

<u>Value of the discriminant</u>	<u>Type &amp; # of Solutions for <math>ax^2 + bx + c = 0</math></u>	<u>Sketch a graph to illustrate the the solutions</u>
$b^2 - 4ac > 0$ (pos)	two real sol.	
$b^2 - 4ac = 0$	one real sol.	
$b^2 - 4ac < 0$ (neg)	No real sol. (2 imag sol.)	