

### 3.2 Complex Numbers CYU

Use when you get it right all by yourself  
**S** Use when you did it all by yourself, but made a silly mistake  
**H** Use when you could do it alone with a little help from teacher or peer  
**G** Use when you completed the problem in a group  
**X** Use when a question was attempted but wrong (get help)  
**N** Use when a question was not even attempted

CONCEPTS	BASIC	INTERMEDIATE	ADVANCED
Simplifying Radicals	1	2	3 - 6
Complex Numbers	7 - 9	10	11, 12
Add/Subtract Complex Numbers	13, 14	15, 16	17, 18
Multiplying Complex Numbers	19, 20	21, 22	23, 24
Solving quadratics	25, 26		
Checking solution(s)	25, 26		
Finding zeros of quadratics		27, 28	

**Simplify the square root.**

1.  $\sqrt{-36}$

$6i$

3.  $2\sqrt{-16}$

$8i$

5.  $6\sqrt{-63}$

$18i\sqrt{7}$

2.  $\sqrt{-18}$

$3i\sqrt{2}$

4.  $-4\sqrt{-32}$

$-16i\sqrt{2}$

6.  $-3\sqrt{-49}$

$-21i$

**Find the values of x and y that satisfy the equation.**

7.  $4x + 2y = 8 + yi$

$x=2; y=2$

9.  $-10x + 12i = 20 + 3yi$

$x=-2$   
 $y=4$

11.  $15 - 3yi = \frac{1}{2}x + 2i$

$x=30$

$y=-\frac{2}{3}$

8.  $3x + 6i = 27 + yi$

$x=9$   
 $y=6$

10.  $9x - 18i = -36 + 6yi$

$x=-4; y=-3$

12.  $54 - \frac{1}{7}yi = 9x - 4i$

$x=6; y=28$

**Add or Subtract. Write the answer in standard form.**

13.  $(6 - i) + (7 + 3i)$

$13 + 2i$

15.  $(12 + 4i) - (3 - 7i)$

$9 + 11i$

17.  $-10 + (6 - 5i) - 9i$

$-4 - 14i$

14.  $(9 + 5i) + (11 + 2i)$

$20 + 7i$

16.  $(2 - 15i) - (4 + 5i)$

$-2 - 20i$

18.  $-3 + (8 + 2i) + 7i$

$5 + 9i$

Multiply. Write the answer in standard form.

19.  $3i(-5 + i)$

$-3 - 15i$

21.  $(3 - 2i)(4 + i)$

$14 - 5i$

23.  $(4 - 2i)(4 + 2i)$

$20$

20.  $2i(7 - i)$

$2 + 14i$

22.  $(7 + 5i)(8 - 6i)$

$86 - 2i$

24.  $(3 - 6i)^2$

$-27 - 36i$

Solve the equation. Check your solution(s).

25.  $x^2 - 4 = -11$

$x = \pm i\sqrt{7}$

26.  $x^2 - 9 = -15$

$x = \pm i\sqrt{6}$

Find the zeros of the function.

27.  $g(x) = 7x^2 + 21$

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

28.  $f(x) = -5x^2 - 125$

$x = \pm 5i$

CYU Reflection: How far can you go: basic, intermediate, or advanced?

Rate your mastery level!

How confident are you with the skills this CYU covered? Circle the score you would give yourself.

