Algebra 2 S1 Name: _____ Block: _____

Topic: Complex Numbers

Adding and Subtracting Complex Numbers

Watch (and take notes) the lecture called Adding and Subtracting Complex Numbers.

Simplify each expression. *If there are any problems you don't know how to do, you should probably do those before you attempt the Prove It problems.*

1. $(6 + 8i) + (3 - 7i)$
   $9 + i$
2. $(3 - 4i) + (-5 - 2i)$
   $-2 - 6i$
3. $(5 - 7i) - (8 + 2i)$
   $-3 - 9i$
4. $(6 - 4i) - (-4 + i)$
   $10 - 5i$
5. $5(-7 + 2i)$
   $-35 + 10i$
6. $2(-1 + 6i) - 3(2 + 4i)$
   -8
7. $4(3 + 9i) + 2(7 - 3i)$
   $26 + 30i$

STOP! See Ms. Lambert to do a PROVE IT problem!

Multiplying Complex Numbers

Watch (and take notes) the lecture called Multiplying Complex Numbers.

Simplify each expression. *If there are any problems you don't know how to do, you should probably do those before you attempt the Prove It problems.*

8. $2i(4 + 6i)$
   $-12 + 8i$
9. $i(5 - 7i)$
   $7 + 5i$
10. $(4 - i)(4 - i)$
    $15 - 8i$
11. $(4 + 2i)(1 - 7i)$
    $18 - 26i$
12. $(1 + 3i)(1 - 7i)$
    $22 - 4i$
13. $(2 + 4i)(-3 - 2i)$
    $2 - 16i$
14. $(11 - 12i)(11 + 12i)$
    265
15. $(2 + 3i)(4 + 5i)$
    $-7 + 22i$
16. $(3 + 2i)(3 + 2i)$
    $5 + 12i$
17. $(5 + 4i)(1 + 2i)$
    $-3 + 14i$

STOP! See Ms. Lambert to do a PROVE IT problem!

Algebra 2 S1 Name: _____ Block: _____

Dividing Complex Numbers

Watch (and take notes) the lecture called Dividing Complex

Simplify each expression. *If there are any problems you don't know how to do, you should probably do those before you attempt the Prove It problems.*

18. $\frac{3+7i}{8-9i}$

$\frac{-39+83i}{145}$

19. $\frac{-2+3i}{-4+5i}$

$\frac{23-2i}{41}$

20. $\frac{4-2i}{-3-5i}$

$\frac{-2+26i}{34}$

21. $\frac{-1-7i}{2+3i}$

$\frac{-23-11i}{13}$

STOP! See Ms. Lambert to do a PROVE IT problem!

Solving Quadratics with Complex Numbers

Watch (and take notes) the lecture called Solving Quadratics with Complex Numbers.

Solve each equation. *If there are any problems you don't know how to do, you should probably do those before you attempt the Prove It problems.*

22. $2x^2 - 6x + 5 = 0$

$x = \frac{6 \pm 2i}{4}$

23. $8x^2 - 4x + 5 = 0$

$x = \frac{4 \pm 12i}{16}$

24. $-5x^2 + 12x - 8 = 0$

$x = \frac{-12 \pm 4i}{-10}$

25. $x^2 + 4x - 5 = 0$

$x = \frac{-4 \pm 6}{2}$

26. $5x^2 + 8x + 5 = 0$

$x = \frac{-8 \pm 6i}{10}$

27. $-7x^2 + 12x = 10$

$x = \frac{-12 \pm i\sqrt{136}}{-14}$

28. $5x^2 + 8x = -4$

$x = \frac{-8 \pm 4i}{10}$

29. $2x^2 - 5x = -35$

$x = \frac{5 \pm i\sqrt{255}}{4}$

30. $8x^2 - 6x = -101$

$x = \frac{6 \pm i\sqrt{3196}}{16}$

31. $9x^2 + 8x = -35$

$x = \frac{-8 \pm i\sqrt{1196}}{18}$

STOP! See Ms. Lambert to do a PROVE IT problem!