Classwork 1.2 Imaginary Numbers

Simplify the following radicals or imaginary numbers.

1. $\sqrt{-16}$

2. $\sqrt{81}$

3. $\sqrt{-45}$

4. $\sqrt{200}$

5. i^{75}

6. $\sqrt{-6}$

7. i^{75}

8. i^{29}

9. i^{9536}

Add, subtract, multiply and divide complex numbers.

10. $(3+2i)+(7+6i)$

11. $(6-5i)-(1+2i)$

12. $(9-4i)-(2+3i)$

13. $-i(3+i)$

14. $(2+3i)(-6-2i)$

15. $(-3+i)(8+5i)$

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

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

Classwork 1.2 Imaginary Numbers **Solutions**

Simplify the following radicals or imaginary numbers.

1. $\sqrt{-16}$

$= 4i$

2. $\sqrt{81}$

$= 9$

3. $\sqrt{-45}$

$= 3i\sqrt{5}$

4. $\sqrt{200}$

$= 10\sqrt{2}$

5. i^{75}

$= -i$

6. $\sqrt{-6}$

$= i\sqrt{6}$

7. i^{251}

$= -i$

8. i^{29}

$= i$

9. i^{9536}

$= 1$

Add, subtract, multiply and divide complex numbers.

10. $(3 + 2i) + (7 + 6i)$

$= 11 + 8i$

11. $(6 - 5i) - (1 + 2i)$

$= 5 - 7i$

12. $(9 - 4i) - (2 + 3i)$

$= 7 - 7i$

13. $-i(3 + i)$

$= 1 - 3i$

14. $(2 + 3i)(-6 - 2i)$

$= -6 - 22i$

15. $(-3 + i)(8 + 5i)$

$= -29 - 7i$

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

$= \frac{-10+20i}{20} = \frac{-1+2i}{2} = \frac{1}{2} + i$

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

$= \frac{7-26i}{25} = \frac{7}{25} - \frac{26}{25}i$