

Brushing Up on Complex Numbers Name _____

Find the absolute value.

1) $-2 + 5i$

2) $-5 - 5i$

3) $5 + 4i$

4) $-2\sqrt{3} - 2i$

5) $3 - 6i$

6) $\frac{\sqrt{34}}{2} + \frac{\sqrt{102}}{2}i$

7) $-4 - i$

8) $2 + 4i$

Perform each division. Write answers in the form $a + bi$.

9) $\frac{5 - 4i}{6i}$

10) $\frac{-1 - 6i}{-4 - 3i}$

11) $\frac{3\sqrt{2} - i\sqrt{6}}{\frac{\sqrt{69}}{2} + \frac{\sqrt{23}}{2}i}$

12) $\frac{-5 - 4i}{-3 - 6i}$

13) $\frac{-\sqrt{2} - i\sqrt{2}}{2\sqrt{2} + 2i\sqrt{2}}$

14) $\frac{-5 + 3i}{-3 + 6i}$

15) $\frac{-2 - 2i}{1 + 3i}$

16) $\frac{4 - i}{-2 - i}$

Multiply.

17) $(-4 - 4i)(3 + 3i)$

18) $\left(\frac{3\sqrt{2}}{2} - \frac{3\sqrt{2}}{2}i\right)\left(\frac{3\sqrt{3}}{2} + \frac{3}{2}i\right)$

19) $(6 + 6i)(1 + 3i)$

20) $(\sqrt{7} - i\sqrt{7}) \cdot -i\sqrt{19}$

21) $(-5 + 4i)(2 - i)$

22) $(\sqrt{21} - i\sqrt{7})(-\sqrt{3} + i)$

23) $\left(\frac{5}{2} + \frac{5\sqrt{3}}{2}i\right)\left(-\frac{3\sqrt{6}}{2} + \frac{3\sqrt{2}}{2}i\right)$

24) $(-3\sqrt{2} + i\sqrt{6}) \cdot 3i$

Raise each number to the given power.

25) $(-5 - 4i)^2$

26) $(-3 - 5i)^5$

27) $(-4 + 5i)^2$

28) $(-5 + 6i)^3$