

10) If $A = \frac{B+C}{BC}$ and $B = 7-2i$ and C is its conjugate. Find the value of A .

$$B = 7-2i \quad C = 7+2i$$

$$A = \frac{B+C}{BC} = \frac{(7-2i)+(7+2i)}{(7-2i)(7+2i)}$$

$$= \frac{14}{49+14i-14i-4i^2} = \frac{14}{49+4} = \frac{14}{53}$$

11) Find $(7+6i)-(9-3i)$

$$7+6i-9+3i$$

$$\boxed{-2+9i}$$

12) Simplify: $(-4+\sqrt{28})-(6-2\sqrt{63})$

$$(-4+\sqrt{4}\sqrt{7})-(6-2\sqrt{9}\sqrt{7})$$

$$(-4+2\sqrt{7})-(6-6\sqrt{7})$$

$$-4+2\sqrt{7}-6+6\sqrt{7}$$

$$\boxed{-10+8\sqrt{7}}$$

13) Write $(-3+9i)^2$ in $a+bi$ form.

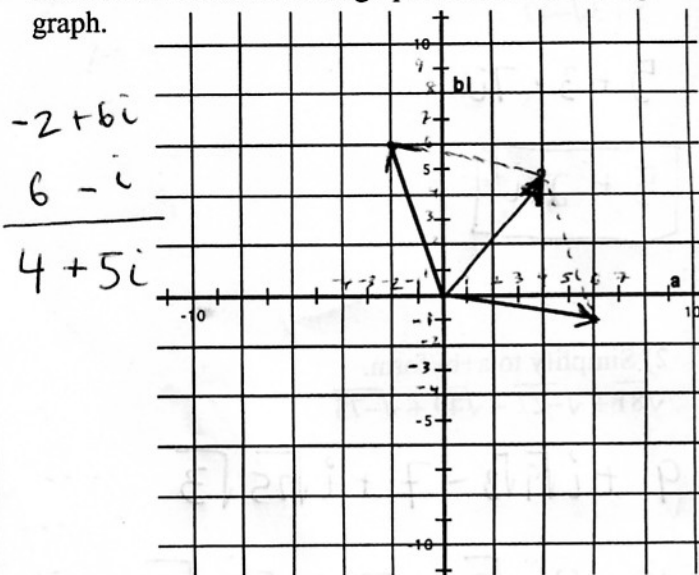
$$(-3+9i)(-3+9i)$$

$$9-27i-27i+81i^2$$

$$9-54i-81$$

$$\boxed{-72-54i}$$

14) Express the sum of the following two complex numbers in $a+bi$ form **and** graph it on the following graph.



15) Simplify $\frac{5}{\sqrt{-7}} = \frac{5}{i\sqrt{7}} = \frac{5}{i\sqrt{7}} \cdot \frac{i\sqrt{7}}{i\sqrt{7}} =$

$$= \frac{5i\sqrt{7}}{i^2\sqrt{49}} = \frac{5i\sqrt{7}}{(-1) \cdot 7}$$

$$= \boxed{-\frac{5i\sqrt{7}}{7}}$$

16) Simplify: $(-2\sqrt{-21})(3\sqrt{-6})$

$$(-2i\sqrt{21})(3i\sqrt{6})$$

$$= -6i^2\sqrt{126} = +6\sqrt{9}\sqrt{14}$$

$$= 6 \cdot 3\sqrt{14} = \boxed{18\sqrt{14}}$$

17) $(3+2i)^3$

$$[(3+2i)(3+2i)](3+2i)$$

$$[9+6i+6i+4i^2](3+2i)$$

$$[9+12i-4](3+2i)$$

$$(5+12i)(3+2i)$$

$$= 15+10i+36i+24i^2$$

$$= 15+46i-24 = \boxed{-9+46i}$$