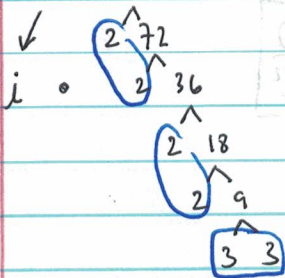


1)  $\sqrt{-144}$   
 $\sqrt{-1} \cdot \sqrt{144}$



$i \cdot 2 \cdot 2 \cdot 2 \cdot 3$   
 $\{12i\}$

3)  $-4 + \sqrt{-49}$   
 $\sqrt{-1} \cdot \sqrt{49}$



$-4 + (i \cdot 7)$

$-4 + 7i$

$a + bi$

↑ Real    ↑ imaginary

7)  $i^{62}$

$$\begin{array}{r} 15 \\ 4 \overline{)62} \\ \underline{-60} \\ 2 \end{array}$$

$\{-1\}$

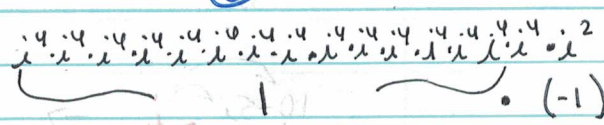
$i^1 \rightarrow i$      $i^2 = -1$      $i^3 = -i$      $i^4 = 1$

(A)

(B)

$(i^4)^{15} \cdot i^2$

$(1)^{15} \cdot (-1)$



9)  $4i^3 + 7i^9$

$$\begin{array}{r} 2 \\ 4 \overline{)9} \\ \underline{-8} \\ 1 \end{array}$$

$4(-i) + (7 \cdot i)$   
 $-4i + 7i$

$\{3i\}$

$(i^4)^2 \cdot i$   
 $(1)^2 \cdot i$   
 $i$

NO PLUS or MINUS,  
 ↓ SO BOX OR FOIL!

19)  $(5 + \sqrt{-16})(2 - \sqrt{-9})$

$(5 + 4i)(2 - 3i)$

	5 + 4i	
2	10	8i
-3i	-15i	-12i <sup>2</sup>

$10 - 7i - 12i^2$

$10 - 7i - 12(-1)$

$10 - 7i + 12$

$22 - 7i$

$i^2 = -1$

21)  $(10 - 5i) \div 5i$

Rewrite

NOT ALLOWED  
 TO HAVE  $i$  in  
 Denominator!

$\frac{10 - 5i}{5i}$

$\frac{10 - 5i}{5i} \cdot \frac{i}{i} \Rightarrow \frac{10i - 5i^2}{5i^2} \Rightarrow \frac{10i - 5(-1)}{5(-1)} \Rightarrow \frac{10i + 5}{-5} = \frac{5 + 10i}{-5} = -1 - 2i$

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

Must multiply by the  
 Conjugate!  
 $(1 - i)$

$\frac{2 - 3i}{1 + i} \cdot \frac{(1 - i)}{(1 - i)} = \frac{2 - 2i - 3i + 3i^2}{1 - i^2} = \frac{2 - 5i + 3(-1)}{1 - (-1)} = \frac{2 - 5i - 3}{2} \Rightarrow \frac{-1 - 5i}{2}$