

Homework Questions

14, 17, 18, 19, 20

$$\begin{aligned}
 14. & -4i(5-i) \\
 & -20i + 4i^2 \\
 & -20i - 4 \\
 & \underline{-4 - 20i}
 \end{aligned}$$

$$\begin{aligned}
 17. & (7+i)(7-i) \\
 & 49 - 7i + 7i - i^2 \\
 & 49 - i^2 \\
 & 49 + 1 = \underline{50}
 \end{aligned}$$

$$\begin{aligned}
 17. & (1 - i\sqrt{3})^2 \\
 & (1 - i\sqrt{3})(1 - i\sqrt{3}) \\
 & 1 - \underbrace{i\sqrt{3} - i\sqrt{3}} + i^2 \cdot 3 \\
 & \underline{1 - 2i\sqrt{3} - 3} \\
 & -2 - 2i\sqrt{3}
 \end{aligned}$$

$$18. \quad \underline{i^{37}} = i^{37/4} = 9.25$$

$$19. \quad \underline{i^{214}} = i^{214/4} = 53.5$$

$$20. \quad \underline{i^{132}} = i^{132/4} = 33$$

$$\begin{aligned}
 i &= i & 1/4 &= .25 \\
 i^2 &= -1 & 2/4 &= .5 \\
 i^3 &= -i & 3/4 &= .75 \\
 i^4 &= 1 & 4/4 &= 1
 \end{aligned}$$