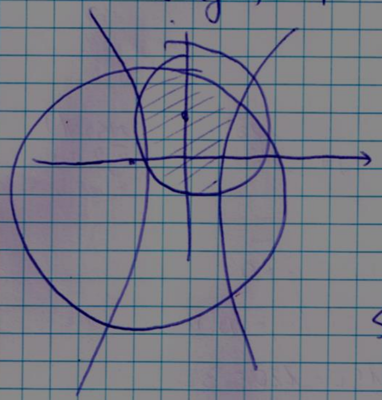
$\boxed{\frac{3.50}{8}}$

א $\quad 4 \geq |z+1| = \sqrt{(x+1)^2+y^2} \rightarrow (x+1)^2+y^2 \leq 16 \rightarrow$ תוך מעגל כולל שפה

$1 > Re(z^2) = Re(x^2+2xyi-y^2) \rightarrow x^2-y^2 < 1 \rightarrow$ היפרבולה

$5 > |z|^2 - 2Im(2z) = x^2+y^2-4y = x^2+(y-2)^2-4$

$x^2+(y-2)^2 < 9 \rightarrow$ תוך מעגל ללא שפה



ב $\quad q = \frac{2i}{1+i} \cdot \frac{1-i}{1-i} = \frac{2i+2}{2}$

$q = 1+i$

$S_{12} = \frac{(1+i)\left[(1+i)^{12}-1\right]}{1+i-1} = \cancel{\frac{(1+i)^{13}-(1+i)}{i}}$

$(1+i) = \sqrt{2}\,cis45$

$(1+i)^{12} = (\sqrt{2}\,cis45)^{12} = 64\,cis180 = -64$

$S_{12} = \frac{(1+i)(-64-1)}{i} = \frac{-65(1+i)(-i)}{1} = -65+65i$

ג $\quad \left|\frac{(3+4i)(1+i)^6}{i^5(2+4i)}\right| = \frac{|3+4i|\,|1+i|^6}{|i|^5\,|2+4i|} = \frac{5\cdot(\sqrt{2})^6}{1^5\sqrt{20}} = \frac{5\cdot 8}{\sqrt{20}}$

$= \frac{40}{2\sqrt{5}} = \frac{20}{\sqrt{5}} = \frac{20\sqrt{5}}{5} = 4\sqrt{5}$