MAC1105 Classwork 6 (Day 6): Operations on Complex Numbers Date _____

Multiply or divide, as indicated. Simplify the answer.

1) $\frac{\sqrt{-112}}{\sqrt{7}}$ $= i\frac{\sqrt{112}}{\sqrt{7}} = i\sqrt{\frac{112}{7}} = i\sqrt{16} = \pm 4i$

Find the sum or difference. Write the answer in standard form.

2) (8 - 3i) - (3 + 4i) - (3 + 3i)

$(8-3-3)+(-3i-4i-3i) = 2+(-10i) = 2-10i$

Find the product. Write the answer in standard form.

3) $(6 - 5i)^2$ $= 36 + (2)(6)(-5i) + (5i)^2$
$= 36 - 60i - 25 = 11 - 60i$

4) (-5 + 5i)(-5 - 5i)

$25 - 25i^2 = 25 - 25(-1) = 50$

Find the quotient. Write the answer in standard form.

5) $\frac{8 + 2i}{4 - 8i}$ $\frac{(8+2i)}{(4-8i)}\frac{(4+8i)}{(4+8i)} = \frac{32+72i-16}{16+64} =$

$= \frac{16+72i}{80} = \frac{8(2+9i)}{8(10)}$

$= \frac{2+9i}{10}$

or

$\frac{1}{5} + \frac{9i}{10}$