11/13 Warm-up:

$i = \sqrt{-1}$

$i^2 = -1$

1. $\sqrt{-72}$

$\sqrt{-1} \cdot \sqrt{72}$

$i \quad i\,2 \cdot 3\sqrt{2} \quad 6i\sqrt{2}$

2. $(5 - 2i)(1 - 3i)$

$5 - 15i - 2i + 6i^2$

$-6 \qquad +6(-1)$

-6

$-1 - 17i$

3. $(5 + 3i)(5 - 3i)$ $= a^2 - b^2$

$25 - 15i + 15i - 9i^2$

$+9 \qquad -9(-1)$

$+9$

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Rationalizing Denominators

Simplify: $(a+b)(a-b) = a^2 - b^2$

a. $\frac{2}{(4+\sqrt{11})} \cdot \frac{(4-\sqrt{11})}{(4-\sqrt{11})}$ (conjugate) $= \frac{8-2\sqrt{11}}{16 - 4\sqrt{11} + 4\sqrt{11} - 11}$

$\boxed{\frac{8-2\sqrt{11}}{5}}$

b. $\frac{(3+4i)}{(5-i)} \cdot \frac{(5+i)}{(5+i)}$ FOIL $= \frac{15+3i+20i+4i^2}{25+1i^2}$ (FOIL a^2-b^2; -4, $+1$)

$= \frac{(11+23i)}{26}$

$\frac{1}{26}(11+23i)$

Complex number standard form $a + bi$ (a: real part, bi: imaginary part)

$\boxed{\frac{11}{26} + \frac{23}{26}i}$

$\frac{5}{7} + \frac{1}{7} = \frac{5+1}{7}$

c. $\frac{(7-\sqrt{7})}{(10+\sqrt{3})} \cdot \frac{(10-\sqrt{3})}{(10-\sqrt{3})}$ FOIL

Like radicals:

$3\sqrt{5} + 7\sqrt{5} = 10\sqrt{5}$

$(3+7)\sqrt{5}$

$17\sqrt{3} - 15\sqrt{3} = 2\sqrt{3}$

$\boxed{17\sqrt{3} - 15\sqrt{5}}$

p. 35 (15-20) all

p. 46 (27-33) odd

Nov 13-8:37 AM