HW: Worksheet/2-34 even

Warm up:

Simplify.

1) (x + 5)(x - 6)

$x^2 - x - 30$

2) (3x - 5)(4 - 2x)

$12x - 6x^2 - 20 + 10x = -6x^2 + 22x - 20$

3) (x + 3)(x - 3)

$x^2 - 9$

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$$\left(3+\sqrt{5}\right)\left(2+\sqrt{6}\right)$$

$6+3\sqrt{6}+2\sqrt{5}+\sqrt{30}$

$$\left(4\sqrt{11}-2\sqrt{2}\right)\left(6\sqrt{11}+8\sqrt{2}\right)$$

$24\sqrt{121}$

$24 \cdot 11$

$16\sqrt{4}$

$16 \cdot 2$

$264 + 32\sqrt{22} - 12\sqrt{22} - 32$

$232 + 20\sqrt{22}$

9. $\left(3\sqrt{5}-7\right)^2$

$\sqrt{25}$

5

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

$45-21\sqrt{5}-21\sqrt{5}+49$

$94-42\sqrt{5}$

$$\left(3a\sqrt{b}-c\right)\left(5a\sqrt{b}+3c\right)$$

$15a^2b + 9ac\sqrt{b} - 5ac\sqrt{b} - 3c^2$

$15a^2b + 4ac\sqrt{b} - 3c^2$

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$$\frac{5\sqrt{2}}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{5\sqrt{6}}{3}$$

Rationalize the denominator

$$\frac{1}{(1+\sqrt{3})}$$

conjugate: $(1-\sqrt{3})$

$$\frac{1}{(1+\sqrt{3})}\cdot\frac{(1-\sqrt{3})}{(1-\sqrt{3})} = \frac{1-\sqrt{3}}{1-\sqrt{3}+\sqrt{3}-3}$$

$$\frac{1-\sqrt{3}}{-2} \quad \times(-1) \quad \times(-1)$$

$$\frac{-1+\sqrt{3}}{2}$$

$$\frac{7}{2\sqrt{6}-3}$$

$2\sqrt{6}\cdot 2\sqrt{6}$

$4\cdot 6$

$(2\sqrt{6}+3)$

$(2\sqrt{6}-3)(2\sqrt{6}+3)$

$$\frac{14\sqrt{6}+21}{24+\cancel{8\sqrt{6}}-\cancel{8\sqrt{6}}-9} = \frac{14\sqrt{6}+21}{15}$$

$$\frac{(3\sqrt{7}-2)(4+4\sqrt{5})}{(4-4\sqrt{5})(4+4\sqrt{5})}$$

$16+16\sqrt{5}-16\sqrt{5}$
$-16\sqrt{25}$
$16 \cdot 5$

$$\frac{12\sqrt{7}+12\sqrt{35}-8-8\sqrt{5}}{16-80}$$

$$\frac{12\sqrt{7}+12\sqrt{35}-8-8\sqrt{5}}{-64} \quad \times(-1) \quad \times(-1)$$

$$\frac{-12\sqrt{7}-12\sqrt{35}+8+8\sqrt{5}}{64} \quad \div 4 \quad \div 4$$

$$\frac{-3\sqrt{7}-3\sqrt{35}+2+2\sqrt{5}}{16}$$

HW Solutions

Q3 $\sqrt{\frac{5}{11}} - \sqrt{\frac{11}{5}}$

$\frac{\sqrt{5}\cdot\sqrt{11}}{\sqrt{11}\cdot\sqrt{11}} \quad \frac{\sqrt{11}\cdot\sqrt{5}}{\sqrt{5}\cdot\sqrt{5}}$

$\frac{\sqrt{55}}{11} - \frac{\sqrt{55}}{5}$

$\frac{5\sqrt{55}}{55} - \frac{11\sqrt{55}}{55} = -\frac{6\sqrt{55}}{55}$

(a)

$$\sqrt{55} - 7\sqrt{\frac{5}{11}}$$

$$\sqrt{55} - \frac{7\sqrt{5}}{\sqrt{11}} \cdot \frac{\sqrt{11}}{\sqrt{11}}$$

$$\frac{\sqrt{55}}{1} - \frac{7\sqrt{55}}{11}$$

$$\frac{11\sqrt{55}}{11} - \frac{7\sqrt{55}}{11} = \frac{4\sqrt{55}}{11}$$

(21) $\sqrt{9 \cdot 2} = \sqrt{9} \cdot \sqrt{2}$

$3\sqrt{18} + \sqrt{\frac{2}{25}}$

$\frac{9\sqrt{2}}{1} + \frac{\sqrt{2}}{5}$

$\frac{45\sqrt{2}}{5} + \frac{\sqrt{2}}{5} = \frac{46\sqrt{2}}{5}$

17) $-\sqrt{338} - \sqrt{200} + \sqrt{162}$

$-13\sqrt{2} - 10\sqrt{2} + 9\sqrt{2}$

$-14\sqrt{2}$

(11) $\dfrac{-11\sqrt{8}-7\sqrt{12}}{-22\sqrt{2}-14\sqrt{3}}$

(25) $4\sqrt{\frac{5}{6}} - \sqrt{\frac{3}{10}}$

$\frac{4\sqrt{5}\cdot\sqrt{6}}{\sqrt{6}\cdot\sqrt{6}} \quad \frac{\sqrt{3}\cdot\sqrt{10}}{\sqrt{10}\cdot\sqrt{10}}$

$\frac{24\sqrt{30}}{36} - \frac{\sqrt{30}}{10}$

$\frac{2\sqrt{30}}{3} - \frac{\sqrt{30}}{10}$

$\frac{20\sqrt{30}}{30} - \frac{3\sqrt{30}}{30} = \frac{17\sqrt{30}}{30}$

(2)

$$3\sqrt{3} - 2\sqrt{12} + 4\sqrt{\frac{1}{3}}$$

$$3\sqrt{3} - 4\sqrt{3} + \frac{4}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}}$$

$$-\sqrt{3} + \frac{4\sqrt{3}}{3}$$

$$-\frac{3\sqrt{3}}{3} + \frac{4\sqrt{3}}{3} = \frac{\sqrt{3}}{3}$$

(12) $3\sqrt{32} - 4\sqrt{63}$

$12\sqrt{2} - 12\sqrt{7}$

(15) $5\sqrt{28} + 2\sqrt{7} - \sqrt{14}$

$10\sqrt{7} + 2\sqrt{7} - \sqrt{14}$

$12\sqrt{7} - \sqrt{14}$

pg. 545-546/1, 11, 17, 19, 25, 33

(1) 1

(11) $33-4\sqrt{65}$

(17) $9+2\sqrt{3}$

(19) $-12-16\sqrt{35}$

(25) $3\sqrt{5}+6$

(33) $\frac{8\sqrt{5}+4\sqrt{10}+12+6\sqrt{2}}{11}$

(23)

$$\frac{3}{(\sqrt{5}-2)}\cdot\frac{(\sqrt{5}+2)}{(\sqrt{5}+2)} = \frac{3\sqrt{5}+6}{5-4}$$

$$\frac{3\sqrt{5}+6}{1} = 3\sqrt{5}+6$$

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