Honors Algebra
11.2 Review Worksheet

Name:
Period: key

Simplify! Do not leave any radicals in the denominator.

1) $\sqrt{56}$ $= \sqrt{4 \cdot 14}$
$= \boxed{2\sqrt{14}}$

2) $\sqrt{\frac{16}{4}} = \frac{\sqrt{16}}{\sqrt{4}} = \frac{4}{2} = \boxed{2}$

3) $\frac{8}{\sqrt{12}} = \frac{8}{\sqrt{4 \cdot 3}}$
$= \frac{8}{2\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{8\sqrt{3}}{2 \cdot 3}$
$= \frac{4}{\cancel{8}\sqrt{3}}{\cancel{6}} = \boxed{\frac{4\sqrt{3}}{3}}$

4) $\frac{5\sqrt{5}}{7\sqrt{6}} \cdot \frac{\sqrt{6}}{\sqrt{6}} = \frac{5\sqrt{30}}{7 \cdot 6} = \boxed{\frac{5\sqrt{30}}{42}}$

5) $7\sqrt{5} - \sqrt{5}$ $= \boxed{6\sqrt{5}}$

6) $4\sqrt{6} + 5\sqrt{6}$ $= \boxed{9\sqrt{6}}$

7) $\sqrt{343} + \sqrt{7}$
$\sqrt{49 \cdot 7} + \sqrt{7}$
$7\sqrt{7} + \sqrt{7} = \boxed{8\sqrt{7}}$

8) $\sqrt{\frac{81y^3}{64x^4}} = \frac{\sqrt{81y^3}}{\sqrt{64x^4}}$
$= \frac{9\sqrt{y^2 \cdot y}}{8x^2} = \boxed{\frac{9y\sqrt{y}}{8x^2}}$

9) $\sqrt{28}+\sqrt{42}-\sqrt{38}$

$\sqrt{4\cdot7}+\sqrt{42}-\sqrt{38}$

$2\sqrt{7}+\sqrt{42}-\sqrt{38}$

10) $2\sqrt{18}-3\sqrt{45}+7\sqrt{128}$

$2\sqrt{9\cdot2}-3\sqrt{9\cdot5}+7\sqrt{64\cdot2}$

$2\cdot3\sqrt{2}-3\cdot3\sqrt{5}+7\cdot8\sqrt{2}$

$6\sqrt{2}-9\sqrt{5}+56\sqrt{2}$

$62\sqrt{2}-9\sqrt{5}$

11) $\sqrt{720x^7y^{20}}$

$\sqrt{144\cdot5\cdot x^6\cdot x\cdot y^{20}}$

$12x^3y^{10}\sqrt{5x}$

12) $\sqrt{425s^3q^{13}}$

$\sqrt{25\cdot17\cdot s^2\cdot s\cdot q^{12}\cdot q}$

$5sq^6\sqrt{17sq}$

13) $\sqrt{3}\left(5\sqrt{7}+4\right)$

$5\sqrt{21}+4\sqrt{3}$

14) $3\sqrt{8}\left(4\sqrt{3}+5\sqrt{2}\right)$

$12\sqrt{24}+15\sqrt{16}$

$12\sqrt{4\cdot6}+15\cdot4$

$12\cdot2\sqrt{6}+60$

$24\sqrt{6}+60$

15) $\sqrt{256r^3s^5}\cdot\sqrt{t^6v^5}$

$\sqrt{256r^3s^5t^6v^5}$

$16t^3\sqrt{r^2\cdot r\cdot s^4\cdot s\cdot v^4\cdot v}$

$16t^3rs^2v^2\sqrt{rsv}$

16) $\sqrt{30x^2y^3}\cdot6\sqrt{8xy}$

$x\sqrt{30y^2\cdot y}\cdot6\sqrt{4\cdot2xy}$

$xy\sqrt{30y}\cdot12\sqrt{2xy}$

$12xy\sqrt{60xy^2}$

$12xy^2\sqrt{4\cdot15x}$

$24xy^2\sqrt{15x}$

80 $\sqrt{5}$ $80\sqrt{5}$

17) $\frac{80}{\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}} = \frac{80\sqrt{5}}{5} = 16\sqrt{5}$

$24xy - \sqrt{15x}$

18) $\left(2+5\sqrt{3}\right)\left(\sqrt{7}-8\sqrt{8}\right)$

$2\sqrt{7} - 16\sqrt{8} + 5\sqrt{21} - 40\sqrt{24}$

$2\sqrt{7} - 16\sqrt{4\cdot 2} + 5\sqrt{21} - 40\sqrt{4\cdot 6}$

$2\sqrt{7} - 32\sqrt{2} + 5\sqrt{21} - 80\sqrt{6}$