# Geometry HW

Name:_____

Simplify.

1. $\sqrt{81}$

9

2. $\sqrt{20}$

$5\ 4$
$2\ 2$
$2\sqrt{5}$

3. $4\sqrt{12}$

$4\ 3$
$2\ 2$
$8\sqrt{3}$

4. $3\sqrt{25}$

15

5. $5\sqrt{75}$

$25\ 3$
$5\ 5$
$25\sqrt{3}$

6. $\sqrt{27}$

$3\sqrt{3}$

7. $\sqrt{32}$

$8\ 4$
$4\ 2\ 2\ 2$
$2\ 2$
$4\sqrt{2}$

8. $2\sqrt{8}$

$2\ 4$
$2\ 2$
$4\sqrt{2}$

9. $4\sqrt{49}$

28

10. $3\sqrt{48}$

$16\ 3$
$4\ 4$
$12\sqrt{3}$

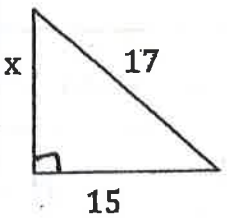
11. $\frac{3}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}}$ $\frac{3\sqrt{3}}{3} = \sqrt{3}$

12. $\frac{2}{\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}}$ $\frac{2\sqrt{5}}{5}$

13. $\frac{\sqrt{8}}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}}$ $\frac{\sqrt{16}}{2} = \frac{4}{2} = 2$

Solve for x.

14.



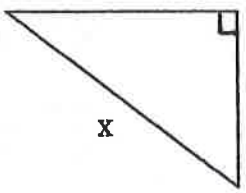

$x = 8$

$15^2 + x^2 = 17^2$

$225 + x^2 = 289$

$x^2 = 64$

15.




$5\sqrt{61}$

$25^2 + 30^2 = x^2$

$625 + 900 = x^2$

$x^2 = 1525$

$5\ 305$

$61$

16. $x\sqrt{2} = 12$

$x = \frac{12}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}}$ $\frac{12\sqrt{2}}{2} = 6\sqrt{2}$

17. $x\sqrt{3} = 6$

$x = \frac{6}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}}$

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

18. $x\sqrt{5} = \sqrt{10}$

$x = \frac{\sqrt{10}}{\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}}$ $\sqrt{50}$

$10\ 5$
$5\ 2$

$x = \frac{\sqrt{50}}{5}$

$\frac{5\sqrt{2}}{5} = \sqrt{2}$

19. $x\sqrt{8} = \sqrt{2}$

$x = \frac{\sqrt{2}}{\sqrt{8}} \cdot \frac{\sqrt{8}}{\sqrt{8}}$

$\frac{\sqrt{16}}{8} = \frac{4}{8} = \frac{1}{2}$

# Did you hear about...

| A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|
| The | very | sad | guy | who | tried | to | KISS |
| **I** | **J** | **K** | **L** | **M** | **N** | **O** | **P** |
| his | girl | friend | in | the | fog | and | mist? |

Rationalize the denominator and simplify each expression below. Find your answer in the adjacent answer column and notice the word next to it. Write this word in the box containing the letter of that exercise. Keep working and you will hear about a mistake.

Show ALL Work!

(A) $\frac{5}{\sqrt{3}}$ $\frac{5\sqrt{3}}{3}$

(B) $\frac{2}{\sqrt{7}}$ $\frac{2\sqrt{7}}{7}$

(C) $\frac{20}{\sqrt{5}}$ $\frac{20\sqrt{5}}{5} = 4\sqrt{5}$

(D) $\frac{14}{\sqrt{2}}$ $\frac{14\sqrt{2}}{2} = 7\sqrt{2}$

(E) $\frac{3}{\sqrt{6}} \cdot \frac{\sqrt{6}}{\sqrt{6}}$ $\frac{3\sqrt{6}}{6} = \frac{\sqrt{6}}{2}$

(F) $\frac{4}{\sqrt{10}}$ $\frac{4\sqrt{10}}{10} = \frac{2\sqrt{10}}{5}$

(G) $\frac{11}{\sqrt{11}}$ $\frac{11\sqrt{11}}{11} = \sqrt{11}$

(H) $\frac{3}{\sqrt{12}}$ $\frac{3\sqrt{12}}{12} = \frac{\sqrt{12}}{4}$ $\frac{2\sqrt{3}}{4} = \frac{\sqrt{3}}{2}$

(I) $\frac{30}{\sqrt{18}}$ $\frac{30\sqrt{18}}{18} = 5\sqrt{2}$ $3\sqrt{2}$

(J) $\frac{8}{\sqrt{20}}$ $\frac{\sqrt{20}}{\sqrt{20}}$ $\frac{8\sqrt{20}}{20}$ $\frac{16\sqrt{5}}{20} = \frac{4\sqrt{5}}{5}$

(K) $\frac{9}{2\sqrt{45}}$ $\frac{9\sqrt{45}}{90}$ $\frac{27\sqrt{5}}{90}$ $\frac{3\sqrt{5}}{10}$

(L) $\frac{\sqrt{7}}{\sqrt{3}}$ $\frac{\sqrt{21}}{3}$

(M) $\frac{\sqrt{5}}{\sqrt{10}}$ $\frac{\sqrt{50}}{10} = \frac{5\sqrt{2}}{10}$ $\frac{\sqrt{2}}{2}$

(N) $\frac{3\sqrt{6}}{\sqrt{2}}$ $\frac{3\sqrt{12}}{2} = \frac{6\sqrt{3}}{2}$ $3\sqrt{3}$

(O) $\frac{\sqrt{3}}{2\sqrt{6}}$ $\frac{\sqrt{18}}{12}$ $\frac{3\sqrt{2}}{12}$ $\frac{\sqrt{2}}{4}$

(P) $\frac{2\sqrt{3}}{\sqrt{15}}$ $\frac{2\sqrt{45}}{15}$ $\frac{6\sqrt{5}}{15}$ $\frac{2\sqrt{5}}{5}$

Answers A–H:

| | |
|---|---|
| $\sqrt{11}$ | TO |
| $\frac{\sqrt{5}}{2}$ | WAS |
| $\frac{\sqrt{2}}{6}$ | HUG |
| $\frac{2\sqrt{10}}{5}$ | TRIED |
| $4\sqrt{5}$ | SAD |
| $\frac{5\sqrt{3}}{3}$ | THE |
| $\frac{3\sqrt{5}}{10}$ | BIG |
| $\frac{\sqrt{6}}{2}$ | WHO |
| $\frac{\sqrt{3}}{2}$ | KISS |
| $\frac{2\sqrt{7}}{7}$ | VERY |
| $7\sqrt{2}$ | GUY |
| $\frac{2\sqrt{6}}{3}$ | GIRL |

Answers I–P:

| | |
|---|---|
| $\frac{3\sqrt{2}}{4}$ | BUT |
| $\frac{\sqrt{2}}{4}$ | AND |
| $\frac{\sqrt{21}}{3}$ | IN |
| $\frac{4\sqrt{5}}{5}$ | GIRL |
| $\frac{6\sqrt{2}}{5}$ | LOST |
| $3\sqrt{3}$ | FOG |
| $\frac{3\sqrt{5}}{10}$ | FRIEND |
| $\frac{\sqrt{2}}{2}$ | THE |
| $5\sqrt{2}$ | HIS |
| $\frac{2\sqrt{2}}{5}$ | A |
| $\frac{2\sqrt{5}}{5}$ | MIST |
| $\frac{9\sqrt{3}}{10}$ | TODAY |

OBJECTIVE 3–k: To simplify quotients containing radicals by rationalizing the denominator.