Algebra II

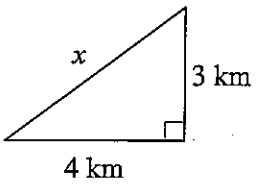
Name Key ID: 1

Roots and Radicals Review

Date _____ Period ____

Find the missing side of each triangle.

1)



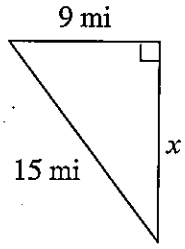
$3^2+4^2=c^2$

$9+16=c^2$

$25=c^2$

$c=5$

2)



$9^2+x^2=15^2$

$81+x^2=225$

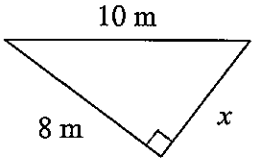
$-81 \quad -81$

$x^2=144$

$\sqrt{x^2}=\sqrt{144}$

$x=12$

3)



$8^2+x^2=10^2$

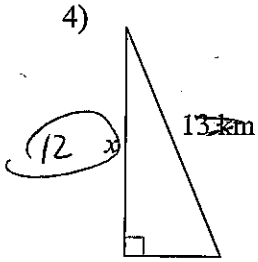
$64+x^2=100$

$-64 \quad -64$

$x^2=36$

$x=6$

4)



$12^2+5^2=x^2$

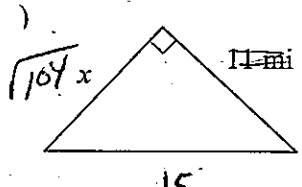
$144+25=x^2$

$169=x^2$

$x=13$

Find the missing side of each triangle. Leave your answers in simplest radical form.

5)



$\sqrt{104}^2+x^2=15^2$

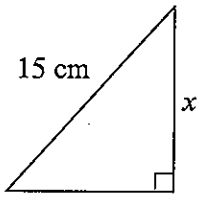
$104+x^2=225$

$-104 \quad -104$

$\sqrt{x^2}=\sqrt{121}$

$x=11$

6)



$10^2+x^2=15^2$

$100+x^2=225$

$-100 \quad -100$

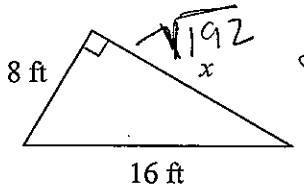
$\sqrt{x^2}=\sqrt{125}$

$x=\sqrt{5\cdot 25}$

$=\sqrt{5\cdot 5^2}$

$x=5\sqrt{5}$

7)



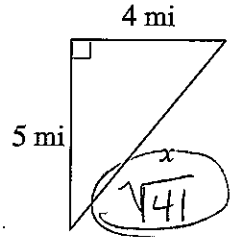
$8^2+x^2=16^2$

256

-64

192

8)



$4^2+5^2=x^2$

$16+25=x^2$

$41=x^2$

$x=\sqrt{41}$

Key

Review

1) $\sqrt{2} \cdot \sqrt{2}$

$= 2$

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

$= \sqrt{2 \cdot 2 \cdot 3}$

$= 2\sqrt{3}$

3) $2\sqrt{3} \cdot 2\sqrt{2}$

$= 2 \cdot 2\sqrt{3 \cdot 2}$

$= 4\sqrt{6}$

4) $2\sqrt{18} \cdot 3$

$2 \cdot 3\sqrt{18}$

$= 6\sqrt{9 \cdot 2}$

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

$6 \cdot 3\sqrt{2} = 18\sqrt{2}$

5) $\sqrt{24} \cdot \sqrt{2}$

$\sqrt{6 \cdot 4 \cdot 2}$

$\sqrt{3 \cdot 2 \cdot 2 \cdot 2 \cdot 2}$

$= 4\sqrt{3}$

6) $2\sqrt{x} \cdot 4\sqrt{x}$

$= 2 \cdot 4\sqrt{x \cdot x}$

$= 8x$

7) $\frac{\sqrt{18}}{\sqrt{3}}$ $\sqrt{\frac{18}{3}}$

$= \sqrt{9}$

$= 3$

8) $\sqrt{\frac{2}{3}} \cdot \sqrt{\frac{3}{2}} = \sqrt{\frac{2}{3} \cdot \frac{3}{2}} =$

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

$= \sqrt{1}$

$= 1$

9) $\frac{\sqrt{27a^2}}{\sqrt{3a^2}} = \sqrt{\frac{27aa}{3aa}}$

$= \sqrt{9}$

$\sqrt{9}$

$= 3$

Key

Review Add and Subtract Square Roots

Simplify.

1) $2\sqrt{2} + 6\sqrt{2}$

$8\sqrt{2}$

2) $8\sqrt{5} + 5\sqrt{5}$

$13\sqrt{5}$

3) $-\sqrt{5} + \sqrt{5}$

0

4) $6\sqrt{3} - 5\sqrt{3}$

$\sqrt{3}$

5) $\sqrt{18} + \sqrt{2}$

$\sqrt{9 \cdot 2} + \sqrt{2}$

$\sqrt{3 \cdot 3} \cdot 2 + \sqrt{2}$

$= 3\sqrt{2} + \sqrt{2}$

$= 4\sqrt{2}$

6) $2\sqrt{8} - \sqrt{2}$

$2\sqrt{2 \cdot 2 \cdot 2} - \sqrt{2}$

$2 \cdot 2\sqrt{2} - \sqrt{2}$

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

$= 3\sqrt{2}$

7) $6\sqrt{3} - 4\sqrt{27}$

$6\sqrt{3} - 4\sqrt{3 \cdot 3 \cdot 3}$

$6\sqrt{3} - 4 \cdot 3\sqrt{3}$

$6\sqrt{3} - 12\sqrt{3}$

$= -6\sqrt{3}$

8) $\sqrt{5} - \sqrt{3} + 3\sqrt{5}$

$= 4\sqrt{5} - \sqrt{3}$

9) $\sqrt{24} + 5\sqrt{6} - \sqrt{2}$

$\sqrt{4 \cdot 6} + 5\sqrt{6} - \sqrt{2}$

$\sqrt{2 \cdot 2} \cdot 3 + 5\sqrt{6} - \sqrt{2}$

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

$= 7\sqrt{6} - \sqrt{2}$

10) $\sqrt{2} - 6\sqrt{5} + 5\sqrt{2}$

$= 6\sqrt{2} - 6\sqrt{5}$