

Simplify the following radical expressions. Leave answer in simplest radical form. NO DECIMALS!

1) $\sqrt{96}$

2) $-8\sqrt{256}$

3) $\sqrt{80}$

4) $-9\sqrt{289}$

5) $5\sqrt{125}$

6) $\sqrt{76}$

7) $\sqrt{350}$

8) $\sqrt{216}$

9) $-\sqrt{\frac{169}{36}}$

10) $\sqrt{\frac{192}{400}}$

11) $(\sqrt{7})(\sqrt{7})$

12) $(-\sqrt{14})(\sqrt{10})$

13) $(-x\sqrt{12})(-x\sqrt{9})$

14) $4\sqrt{5} \cdot \sqrt{12x}$

15) $(-\sqrt{13x^2})(-\sqrt{3y^2})(-\sqrt{13x^2})$

16) $\sqrt{a^2b^4c^7}$

Rationalize the denominator.

17) $\sqrt{\frac{5}{11}}$

18) $\sqrt{\frac{15}{20}}$

19) $\sqrt{\frac{7}{2}}$

20) $\frac{2}{3\sqrt{2}}$

Add and Subtract the following radical expressions. Leave answer in simplest radical form. NO DECIMALS.

21) $13\sqrt{2} + 12\sqrt{2}$

22) $8 - 3\sqrt{98} + 5\sqrt{2}$

23) $\sqrt{8x} + 5\sqrt{50x} - \sqrt{18x}$

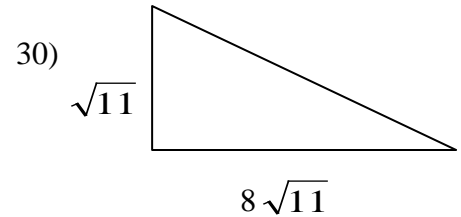
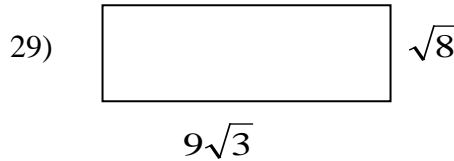
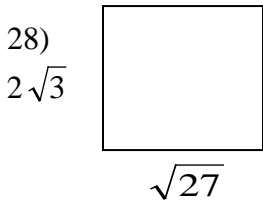
24) $3\sqrt{18} - 2\sqrt{2}$

25) $-\sqrt{45} + 2\sqrt{5} - \sqrt{20} - 2\sqrt{6}$

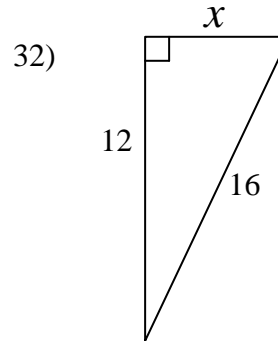
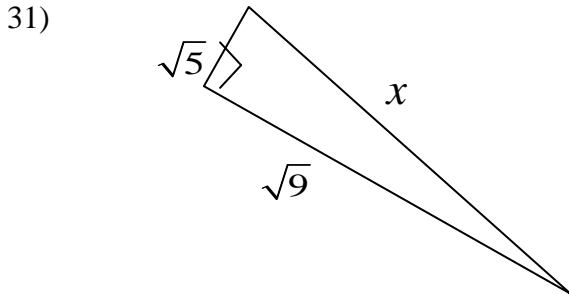
26) $-3\sqrt{45} + 2\sqrt{12} + 3\sqrt{6} - 3\sqrt{20}$

27) Find the perimeter of a triangle whose side lengths are 7 cm, $6\sqrt{2}$ cm, and $\sqrt{18}$ cm. Give the answer as a radical expression in simplest form. Label appropriately.

Find the area of each figure. Show formula and steps. Simplify the radicals and label appropriately. NO DECIMALS!

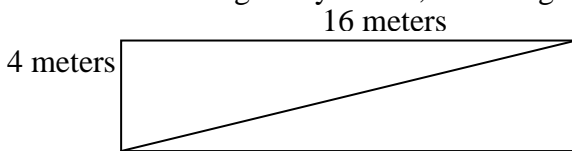


Find the missing side, x , of the given right triangle. Show all work and simplify all radicals. NO DECIMALS!



33) Your boat travelled 20 miles north of the dock. Your friend's boat travelled 25 miles east of the dock. How far away is your boat from your friend's boat? Give your answer as a radical expression in simplest form.

34) To train to be a lifeguard Trent swims across his pool diagonally every day. If his pool is 4 meters wide, and it is 16 meters diagonally across, how long is his pool?



35) Continue the following patterns to make a general statement about any number x .

$$\sqrt{1} \sqrt{1} = \underline{\hspace{2cm}}$$

$$\sqrt{2} \sqrt{2} = \underline{\hspace{2cm}}$$

$$\sqrt{3} \sqrt{3} = \underline{\hspace{2cm}}$$

⋮

$$\sqrt{8} \sqrt{8} = \underline{\hspace{2cm}}$$

⋮

$$\sqrt{x} \sqrt{x} = \underline{\hspace{2cm}}$$

Describe the pattern in words _____