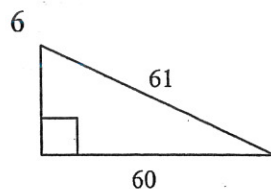
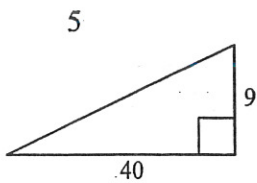
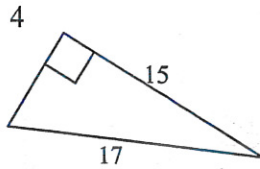
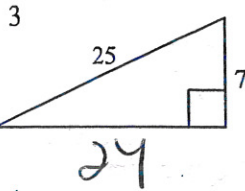
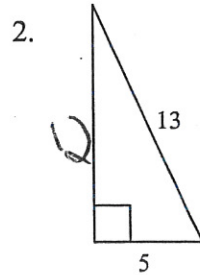
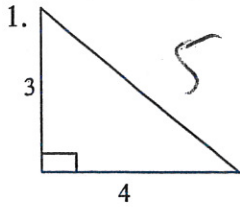


I. Use Pythagorean Theorem to find the missing dimension of each right triangle. Then complete the chart.



|    | Short Leg | Long Leg | Hypotenuse |
|----|-----------|----------|------------|
| 1. | 3         | 4        | 5          |
| 2. | 5         | 12       | 13         |
| 3. | 7         | 24       | 25         |
| 4. | 8         | 15       | 17         |
| 5. | 9         | 40       | 41         |
| 6. | 11        | 60       | 61         |
|    |           |          |            |

Given the triples above that you put in the table, use the factors in the table below to compute additional triples. (Use the chart above, and fill in the chart below.)

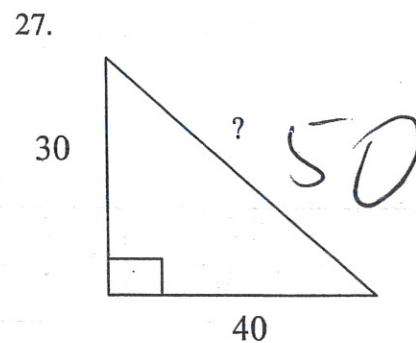
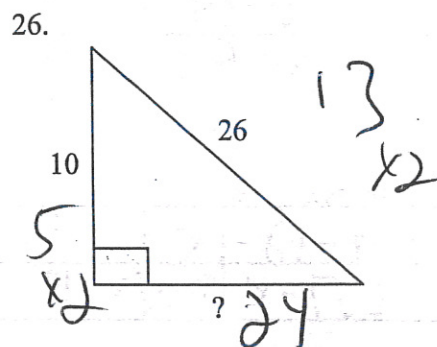
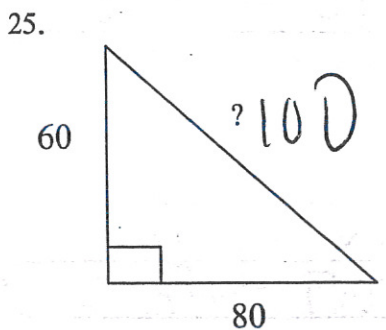
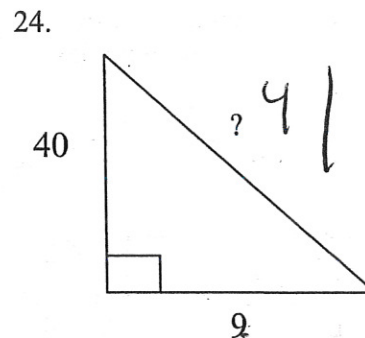
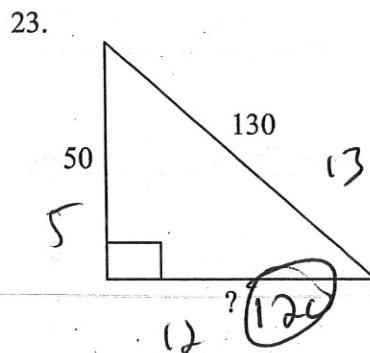
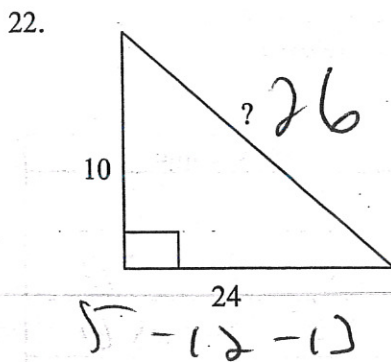
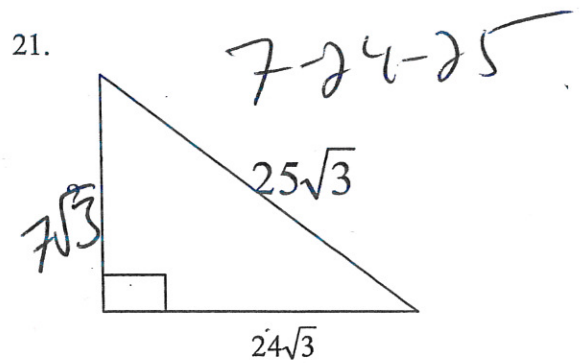
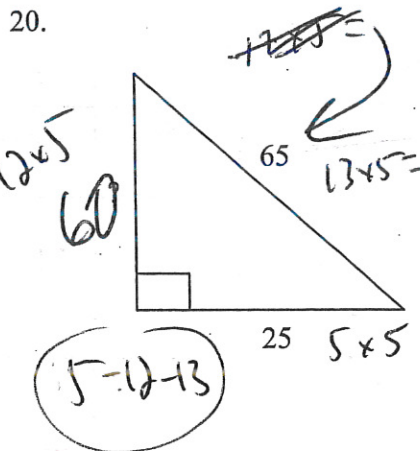
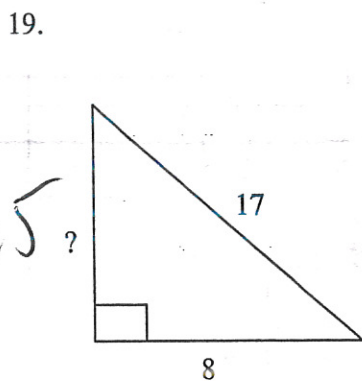
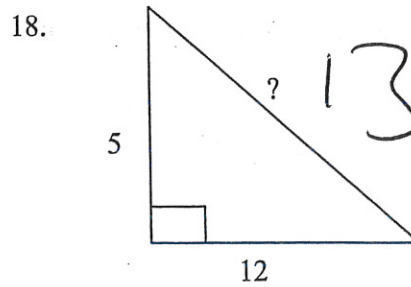
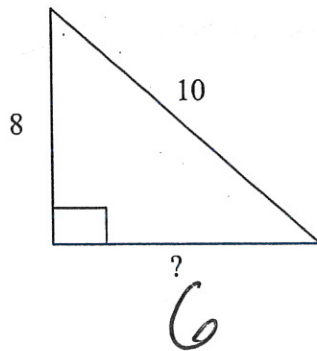
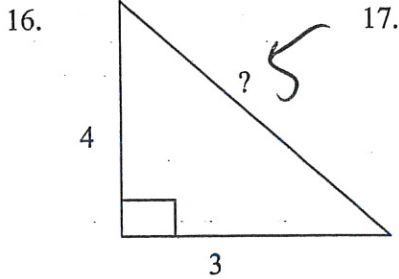
|     | Triple                            | Factor | New Triple                         | Factor | New Triple                           |
|-----|-----------------------------------|--------|------------------------------------|--------|--------------------------------------|
| 7.  | 3-4-5                             | 2      | 6-8-10                             | 10     | 30-40-50                             |
| 8.  | 5-12-13                           | 2      | 10-24-26                           | 10     | 50-120-130                           |
| 9.  | 7-24-25                           | 2      | 14-48-50                           | 10     | 70-240-250                           |
| 10. | 8-15-17                           | 2      | 16-30-34                           | 10     | 80-150-170                           |
| 11. | 9-40-41                           | 2      | 18-80-82                           | 10     | 90-400-410                           |
| 12. | 11-60-61                          | 2      | 22-120-122                         | 10     | 110-600-610                          |
| 13. | 6, 8, 10 note                     | 2      | 12-16-20                           | 10     | 60-80-100                            |
| 14. | 3, 4, 5                           | 3      | 9-12-15                            | 5      | 15-20-25                             |
| 15. | $3\sqrt{7}, 4\sqrt{7}, 5\sqrt{7}$ | 2      | $6\sqrt{7}, 8\sqrt{7}, 10\sqrt{7}$ | 10     | $30\sqrt{7}, 40\sqrt{7}, 50\sqrt{7}$ |

Looking at #15 above, if all three numbers of a triple have the same radical ( $\sqrt{7}, \sqrt{2}, \dots$ ) - would you get a similar result as you did in #15?

Yes  $3\sqrt{x} - 4\sqrt{x} - 5\sqrt{x}$

Same result

Using the Pythagorean Common Triples, find the missing side (triangles are rarely to scale).

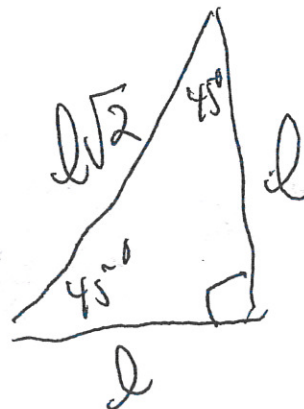
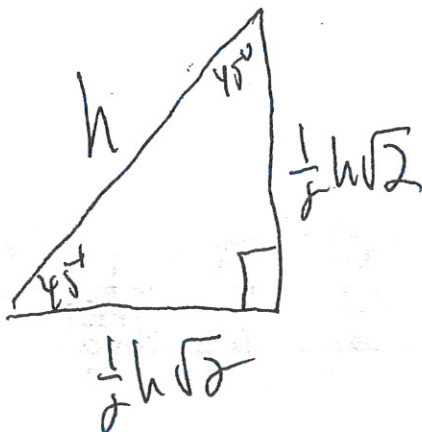
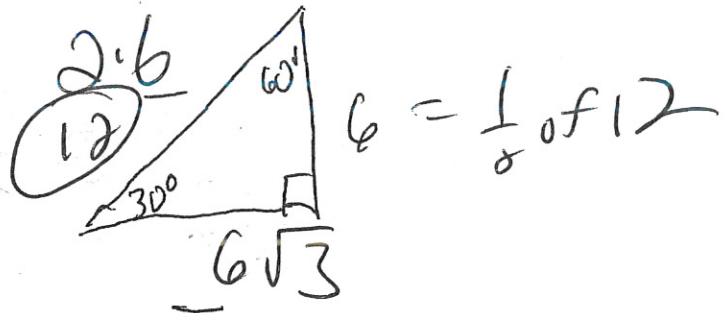
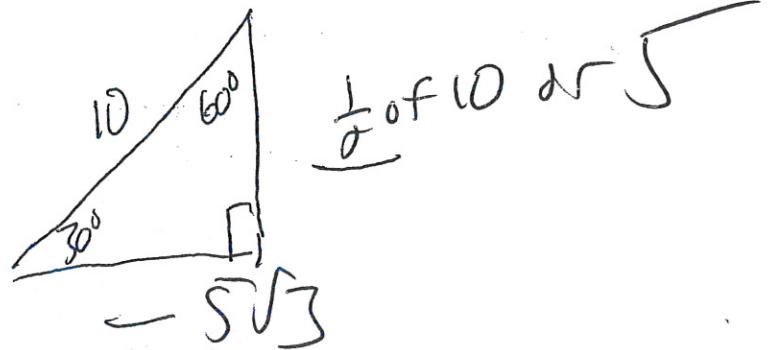
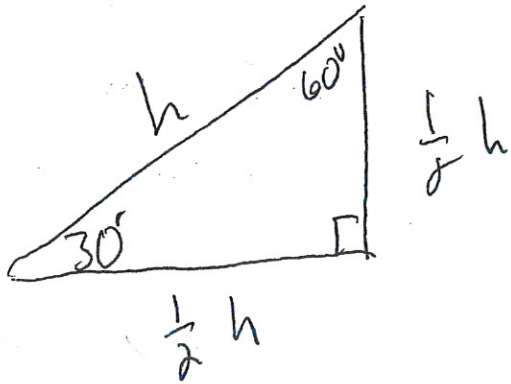


$3-4-5$   
 $\times 20 \quad \times 20 \quad \times 20$

$5-12-13$   
 $\times 2 \quad \times 2 \quad \times 2$

$3-4-5$

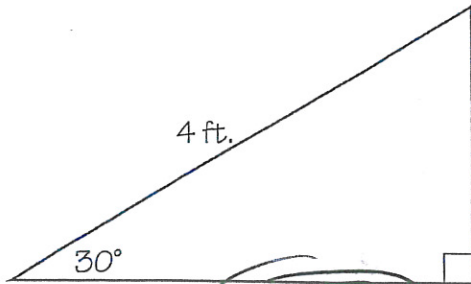
# Special Rt Triangles





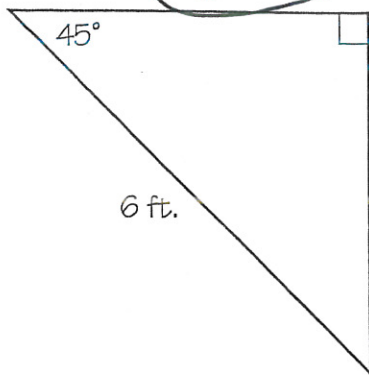
# "What is the favorite game on Navy ships?"

Solve the following missing lengths. Put the letter of the missing length above the answer line below. When all the letters are filled in, the joke will be solved.



$\frac{1}{2} \text{ of } 4$   
 $(2)$

$(2\sqrt{3})$

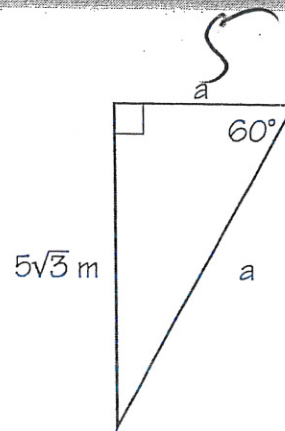


$3\sqrt{2}$

$\frac{1}{2} 6\sqrt{2}$

$6\sqrt{3}$

$12\sqrt{3}$

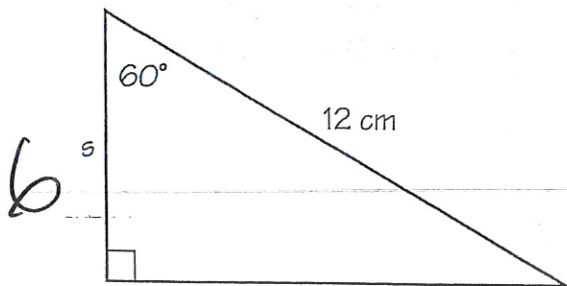


10

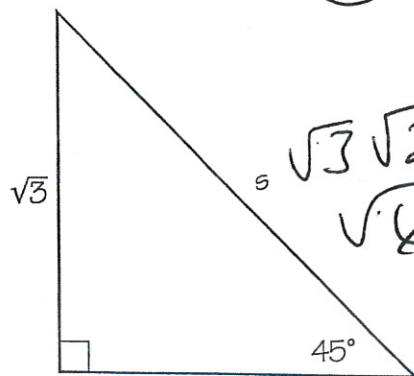
$\frac{36}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}}$

$\frac{36\sqrt{3}}{3}$

$(12\sqrt{3})$



$6\sqrt{3}$



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

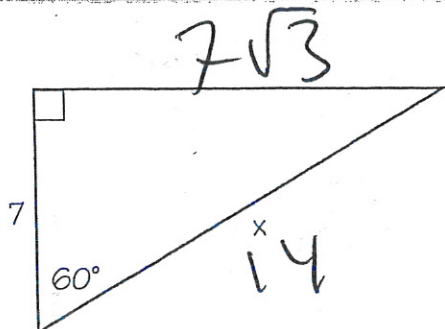
$\frac{s}{\sqrt{6}}$   $\frac{e}{2\sqrt{3}}$   $\frac{a}{12\sqrt{3}}$   $\frac{m}{6\sqrt{3}}$   $\frac{n}{10}$   $\frac{n}{3\sqrt{2}}$

$\frac{s}{6}$   $\frac{a}{5}$   $\frac{y}{24\sqrt{3}}$   $\frac{s}{2}$

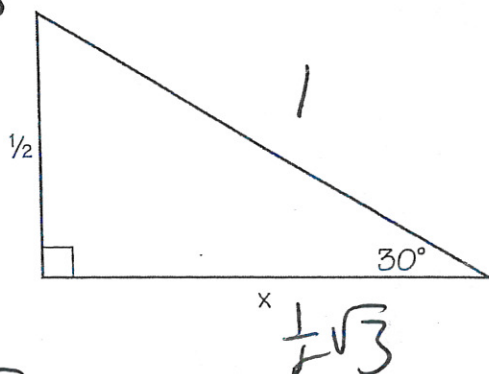
# "What do you have if you have had the same mustard before?"

Find the missing lengths. The answer to each problem will match a letter that will allow you to figure out the joke.

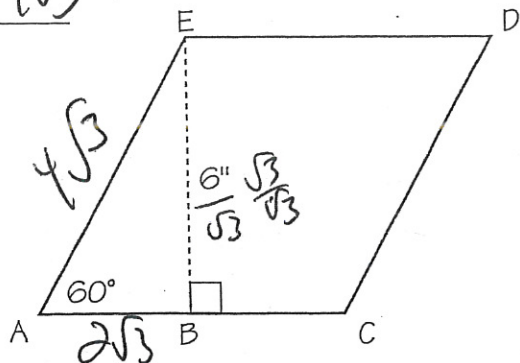
1.  $x = 14$



2.  $x = \frac{1}{2}\sqrt{3}$

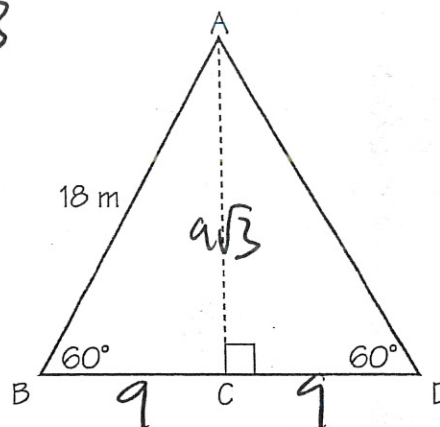


3.  $AE = 4\sqrt{3}$



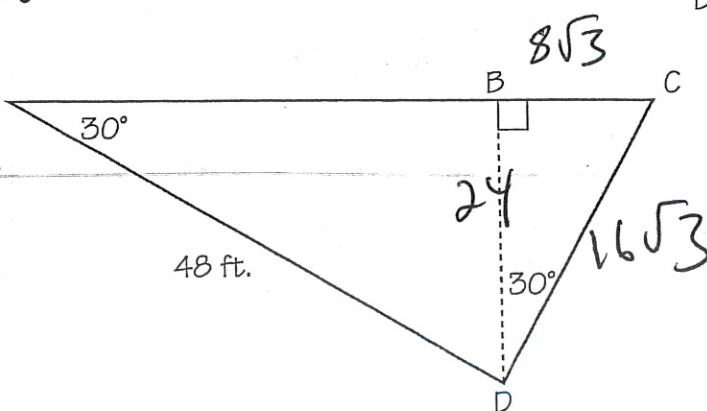
4.  $AC = 9\sqrt{3}$

5.  $CD = 9$



6.  $BC = 8\sqrt{3}$

7.  $CD = 16\sqrt{3}$



A: 8

N:  $9\sqrt{3}$

J: 9

D:  $16\sqrt{3}$

O: 14

E:  $\sqrt{3}$

U:  $4\sqrt{3}$

V:  $8\sqrt{3}$

C:  $\frac{1}{2}$

B:  $5\sqrt{3}$

I:  $\frac{\sqrt{3}}{2}$

W: 3

D I J O N

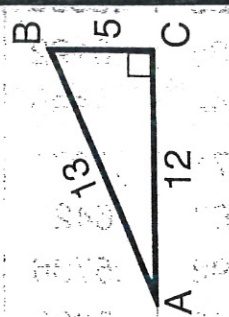
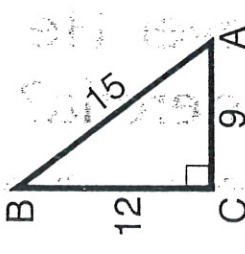
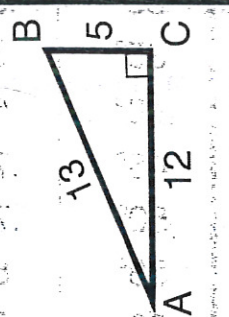
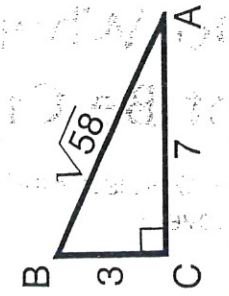
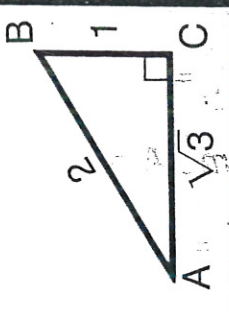
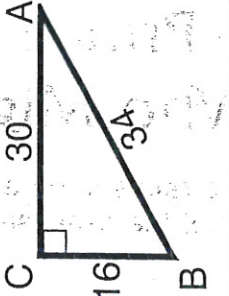
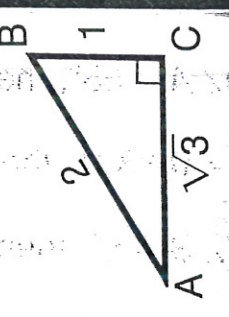
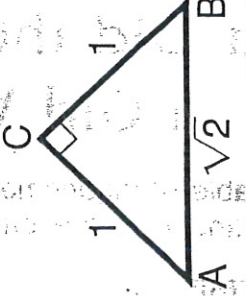
V U



# You Do the Work on a sheet of paper

## What Did Mrs. Margarine Think About Her Sister's Husband?

For each exercise, select the correct ratio from the four choices given. Write the letter of the correct choice in the box that contains the number of that exercise.

|                                                                                     |                                                                                       |                                                                                                                                             |                                                                                     |                                                                                                                                                  |                                                                                     |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| $\textcircled{1} \sin A$<br>$\textcircled{2} \cos A$<br>$\textcircled{3} \tan A$    |    | $\textcircled{1} \frac{12}{13}$<br>$\textcircled{2} \frac{5}{12}$<br>$\textcircled{3} \frac{13}{5}$<br>$\textcircled{4} \frac{13}{12}$      | $\textcircled{13} \sin A$<br>$\textcircled{14} \cos A$<br>$\textcircled{15} \tan A$ | $\textcircled{D} \frac{5}{3}$<br>$\textcircled{F} \frac{4}{3}$<br>$\textcircled{H} \frac{3}{5}$<br>$\textcircled{E} \frac{4}{5}$                 |    |
| $\textcircled{4} \sin B$<br>$\textcircled{5} \cos B$<br>$\textcircled{6} \tan B$    |    | $\textcircled{L} \frac{13}{5}$<br>$\textcircled{A} \frac{12}{13}$<br>$\textcircled{T} \frac{5}{13}$<br>$\textcircled{S} \frac{12}{5}$       | $\textcircled{16} \sin B$<br>$\textcircled{17} \cos B$<br>$\textcircled{18} \tan B$ | $\textcircled{I} \frac{3}{\sqrt{58}}$<br>$\textcircled{N} \frac{7}{\sqrt{58}}$<br>$\textcircled{A} \frac{3}{7}$<br>$\textcircled{W} \frac{7}{3}$ |    |
| $\textcircled{7} \sin A$<br>$\textcircled{8} \cos A$<br>$\textcircled{9} \tan A$    |   | $\textcircled{E} \frac{\sqrt{3}}{2}$<br>$\textcircled{U} 2$<br>$\textcircled{I} \frac{1}{2}$<br>$\textcircled{R} \frac{1}{\sqrt{3}}$        | $\textcircled{19} \sin A$<br>$\textcircled{20} \cos A$<br>$\textcircled{21} \tan A$ | $\textcircled{R} \frac{15}{17}$<br>$\textcircled{S} \frac{17}{8}$<br>$\textcircled{C} \frac{8}{17}$<br>$\textcircled{L} \frac{8}{15}$            |   |
| $\textcircled{10} \sin B$<br>$\textcircled{11} \cos B$<br>$\textcircled{12} \tan B$ |  | $\textcircled{I} \sqrt{3}$<br>$\textcircled{A} \frac{\sqrt{3}}{2}$<br>$\textcircled{U} \frac{1}{2}$<br>$\textcircled{P} \frac{1}{\sqrt{3}}$ | $\textcircled{22} \sin A$<br>$\textcircled{23} \cos A$<br>$\textcircled{24} \tan A$ | $\textcircled{T} \frac{1}{\sqrt{2}}$<br>$\textcircled{B} 1$<br>$\textcircled{T} \frac{1}{\sqrt{2}}$<br>$\textcircled{N} \sqrt{2}$                |  |

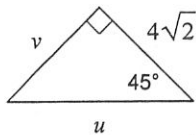
|    |   |    |   |    |    |   |   |    |    |    |   |    |    |    |   |    |    |   |              |              |    |   |    |
|----|---|----|---|----|----|---|---|----|----|----|---|----|----|----|---|----|----|---|--------------|--------------|----|---|----|
| 14 | 3 | 17 | 6 | 10 | 23 | 8 | 1 | 20 | 12 | 15 | 7 | 19 | 24 | 11 | 5 | 22 | 13 | 9 | 2            | 16           | 21 | 4 | 18 |
| H  | L | J  | S | A  | T  | E | R | R  | I  | F  | I | C  | B  | U  | T | T  | E  | R | <del>W</del> | <del>A</del> | L  | A | W  |

# Special RT Triangles

## Assignment

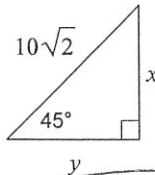
Find the missing side lengths. Leave your answers as radicals in simplest form.

1)



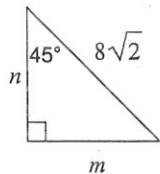
$$u = 8, v = 4\sqrt{2}$$

2)



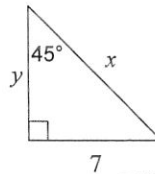
$$x = 10, y = 10$$

3)



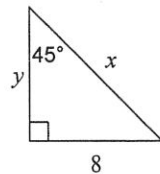
$$m = 8, n = 8$$

4)



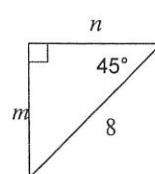
$$x = 7\sqrt{2}, y = 7$$

5)



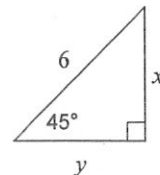
$$x = 8\sqrt{2}, y = 8$$

6)



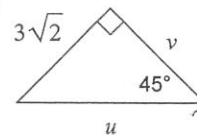
$$m = 4\sqrt{2}, n = 4\sqrt{2}$$

7)



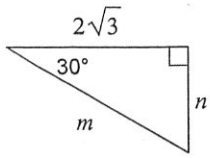
$$x = 3\sqrt{2}, y = 3\sqrt{2}$$

8)



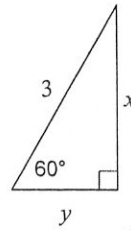
$$u = 6, v = 3\sqrt{2}$$

9)



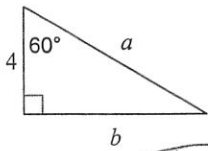
$$m = 4, n = 2$$

10)



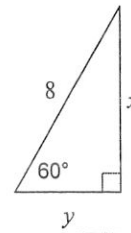
$$x = \frac{3\sqrt{3}}{2}, y = \frac{3}{2}$$

11)



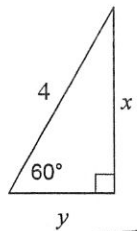
$$a = 8, b = 4\sqrt{3}$$

12)



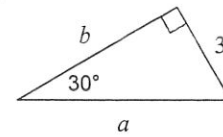
$$x = 4\sqrt{3}, y = 4$$

13)



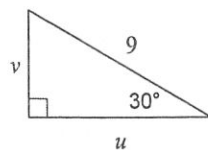
$$x = 2\sqrt{3}, y = 2$$

14)



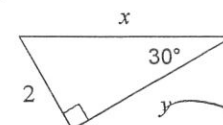
$$a = 6, b = 3\sqrt{3}$$

15)



$$u = \frac{9\sqrt{3}}{2}, v = \frac{9}{2}$$

16)



$$x = 4, y = 2\sqrt{3}$$