

Questions on 6.8 HW?

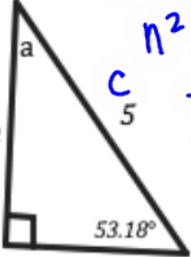
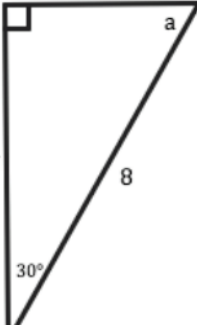
SM2 - Module 6 SE.pdf - Adobe Acrobat Reader DC
 File Edit View Window Help
 Home Tools SM3H Module 6 - ... SM2 - Module 6 SE... x
 46 / 61 125%

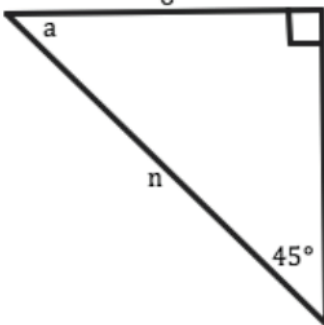
For each right triangle below find the missing side n (Pythagorean Theorem could be helpful) and the missing angle, a (Angle Sum Theorem for Triangles could be useful).

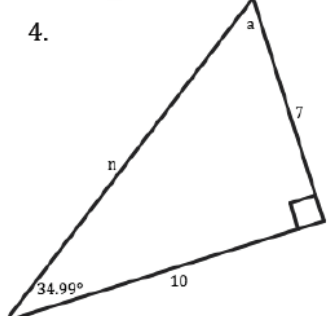
1. $n^2 + 3^2 = 5^2$
 $n^2 + 9 = 25$
 $-9 \quad -9$
 \hline
 $\sqrt{n^2} = \sqrt{16}$
 $n = 4$

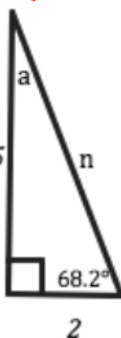
$4 = n$

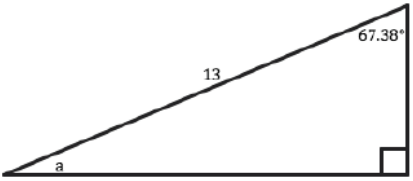
$90 - 53.18 = 36.82 = a$

3. 

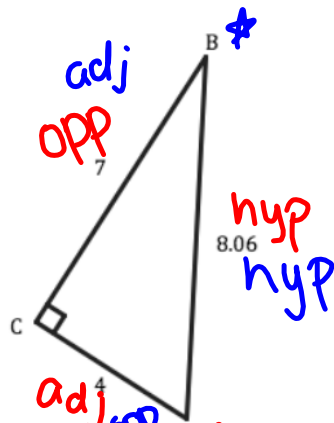
4. 

5. 

6. 

8.50 x 11.00 in

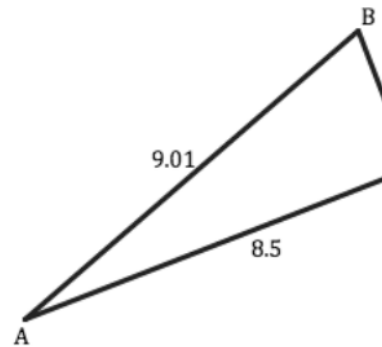
7.



★ A as the ref. \angle ★ B as the ref. \angle .

a. $\cos(A) = \frac{4}{8.06}$	d. $\cos(B) = \frac{7}{8.06}$
b. $\sin(A) = \frac{7}{8.06}$	e. $\sin(B) = \frac{4}{8.06}$
c. $\tan(A) = \frac{7}{4}$	f. $\tan(B) = \frac{4}{7}$

8.



a. $\cos(A) =$	d. $\cos(B) =$
b. $\sin(A) =$	e. $\sin(B) =$
c. $\tan(A) =$	f. $\tan(B) =$

8.50 x 11.00 in

Write each of the quadratic functions in factored form and then determine both the x-intercepts as well as the y-intercept.

Standard $ax^2 + bx + c$ factored $(x-d)(x-e)$

11. $f(x) = x^2 + 9x + 20$

12. $g(x) = x^2 + 2x - 15$

13. $h(x) = x^2 - 49$

a. Factored form:

a. Factored form:

a. Factored form:

$$(x+4)(x+5)$$

b. x-intercepts:

b. x-intercepts:

b. x-intercepts:

$$x = -4, -5$$

$$(-4, 0), (-5, 0)$$

c. y-intercept:

c. y-intercept:

c. y-intercept:

$$20 = y$$

$$(0, 20)$$

$$(x+4)(x+5) = 0$$

$$x^2 + 5x + 4x + 20$$

14. $r(x) = x^2 - 13x + 30$

15. $f(x) = x^2 + 20x + 100$

16. $g(x) = x^2 - 8x - 48$

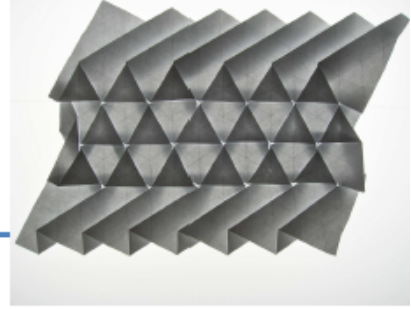
a. Factored form:

a. Factored form:

a. Factored form:

6.9 Relationships with Meaning

A Solidify Understanding Task



Part I

1. Use the information from the given triangle to write the following trigonometric ratios:

$$\sin(A) = \frac{\text{opposite}}{\text{hypotenuse}} = \frac{6}{10} = \frac{3}{5}$$

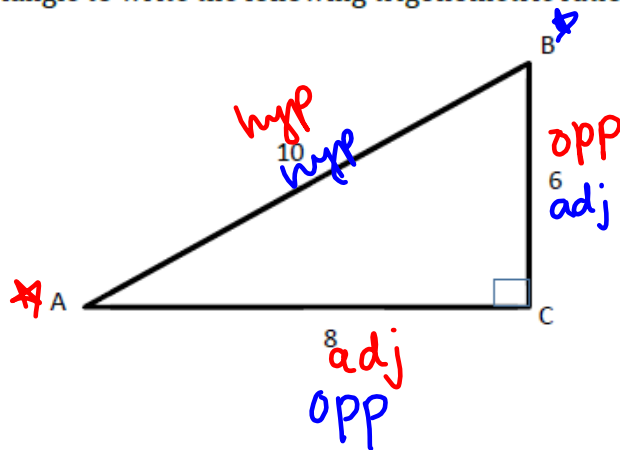
$$\cos(A) = \frac{\text{adjacent}}{\text{hypotenuse}} = \frac{8}{10} = \frac{4}{5}$$

$$\tan(A) = \frac{\text{opposite}}{\text{adjacent}} = \frac{6}{8} = \frac{3}{4}$$

$$\sin(B) = \frac{8}{10} = \frac{4}{5}$$

$$\cos(B) = \frac{6}{10} = \frac{3}{5}$$

$$\tan(B) = \frac{8}{6} = \frac{4}{3}$$



2. Do the same for this triangle:

$$\sin(A) = \frac{9}{10} *$$

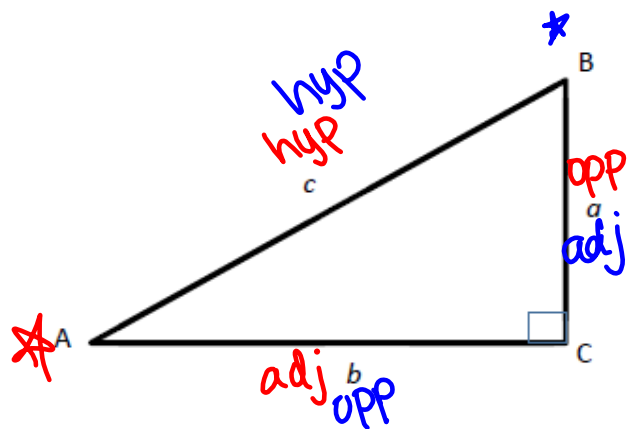
$$\cos(A) = \frac{9}{10} \heartsuit$$

$$\tan(A) = \frac{9}{9} = 1$$

$$\sin(B) = \frac{9}{10} \heartsuit$$

$$\cos(B) = \frac{9}{10} *$$

$$\tan(B) = \frac{9}{9} = 1$$



3. Use the information above to write observations you notice about the relationships of trigonometric ratios.

$$\sin A = \cos B = \frac{a}{c}$$

$$\cos A = \sin B = \frac{b}{c}$$

$\tan A$ & $\tan B$ are reciprocals ($\frac{a}{b}$ & $\frac{b}{a}$)

4. Do you think these observations will always hold true? Why or why not?

Yes

Part 2

The following is a list of conjectures made by students about right triangles and trigonometric relationships. For each, state whether you think the conjecture is true or false. Justify your answer.

5. $\cos(A) = \sin(A)$ **False**

6. $\tan(A) = \frac{\sin(A)}{\cos(A)}$ **True**

7. $\sin(A) = \cos(90^\circ - A)$ **True**

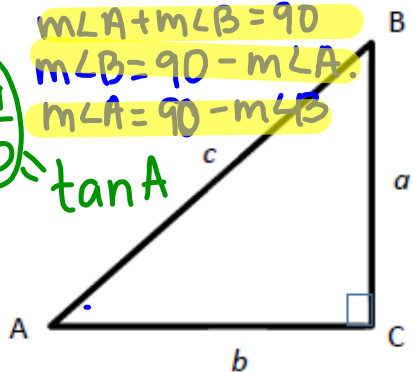
8. $\cos(A) = \sin(B)$ **True**

9. $\cos(B) = \sin(90^\circ - A)$ **False**

10. $\tan(A) = \frac{1}{\tan(B)}$ **True**

$$\frac{\sin A}{\cos A} = \frac{\frac{a}{c}}{\frac{b}{c}} = \frac{a}{b}$$

$$\frac{a}{c} \div \frac{b}{c} = \frac{a}{c} \cdot \frac{c}{b} = \frac{a}{b}$$



Note the following convention used to write: $[\sin(A)]^2 = \sin^2(A)$

11. $\sin^2(A) + \cos^2(A) = 1$ **True**

12. $1 - \sin(A)^2 = \cos^2(A)$ **False**

13. $\sin^2(A) = \sin(A^2)$ **False**

$$\left(\frac{a}{c}\right)^2 + \left(\frac{b}{c}\right)^2 = \frac{a^2}{c^2} + \frac{b^2}{c^2} = \frac{a^2 + b^2}{c^2}$$

$$= \frac{c^2}{c^2} = 1$$

Part III

14. Given: A right triangle with the following trigonometric ratio: $\sin(30^\circ) = \frac{1}{2}$ find all trigonometric ratios for this triangle. How do you know these values are always going to be true when given this angle?

Homework

Finish 6.9 "Ready, Set, Go"