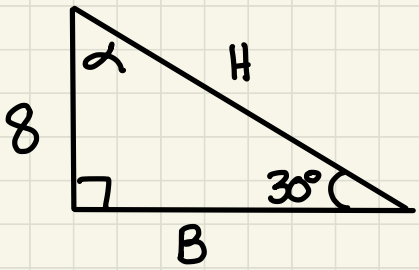
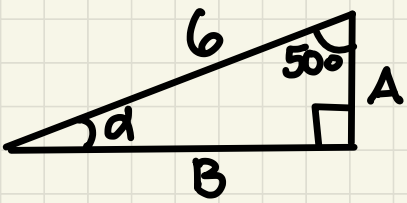
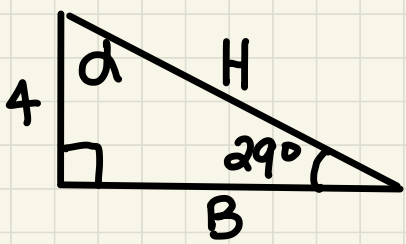
Ch. 4 ¾ 5

SOLVE FOR THE UNKNOWN

$\sin 30° =$ ____



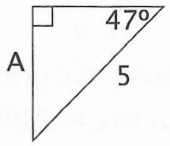


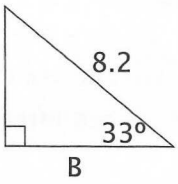


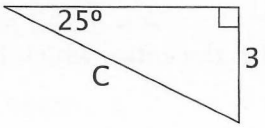
Do practice problems pg. 46

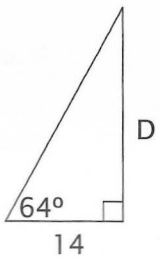
Practice Problems

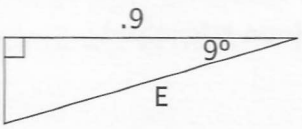
To solve for the unknown, carefully examine what information is given, and choose the trig function that will solve the problem most efficiently. Remember that there is more than one way to solve each problem. Estimate your answer.

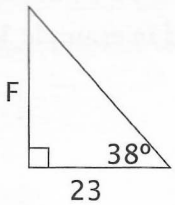
1. 

2. 

3. 

4. 

5. 

6. 

Ch. 5 - Arc Functions

① On our calculators, $\sin 30° = .5$

THEREFORE $\sin\theta = .5$

TO SOLVE FOR θ TYPE [Sin^{-1}] [.] [5] [ENTER]

THIS FUNCTION IS called: INVERSE SIN or ArcSin on Homework.

② Change DEGREES - Minutes - Seconds ⟶ DECIMAL

$34° 41' 25''$

LONG WAY

60 sec = 1 min
60 min = 1 degree

Start at :

$25''$.____ = ____

Short WAY

34 [2nd] [ANGLE] [°] [ENTER] 41 [2nd] [Angle] ['] [ENTER] 25 [ALPHA] ["] = ____

PRE-CALC — ROUND TO THE $\frac{1}{1000}^{th}$ place

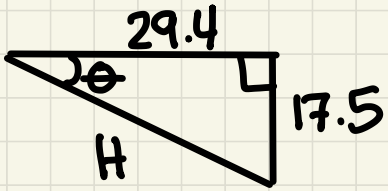
1) $\cos 7° 34'$ = _____

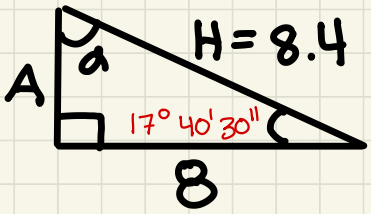
2) $\sin 68° 27' 43''$ = _____

3) $\tan 24° 12' 12''$ = _____

4) $\cos 47° 00' 05''$ = _____

APPLICATION - SOLVE TRIANGLES





Do Practice Problems pg. 57

Example 1
Find the decimal ratio for sin 30°.

Enter 30 into your calculator and then hit sin.

The screen should read .5.

Example 2
Find the decimal ratio for tan 81°.

Enter 81 into your calculator and then hit tan.

The screen should read 6.313751, or 6.3138
when rounded to four places or ten-thousandths as in the table.

Practice Problems 1
Find the decimal ratio for each angle. Use your calculator and round to ten-thousandths.

1. sin 14°
2. tan 88°
3. tan 67°
4. cos 36°
5. sin 52°
6. cos 45°

Change the minutes to degrees:

$$\frac{20.75 \text{ min}}{1} \times \frac{1 \text{ deg}}{60 \text{ min}} = \frac{20.75}{60} \text{deg} = .3458 \text{ degrees}$$

(rounds to .35°)

So 34° 20' 45" = 34.35°.

Now we can find the trig ratio by entering 34.35° and using sine, cosine, or tangent to find the ratio.

Practice Problems 3

Change the degrees-minutes-seconds to a decimal number using unit multipliers.

1. 28° 30' 25"
2. 53° 42' 10"
3. 36° 24'
4. 41° 15' 48"
5. 18° 50' 08"
6. 62° 00' 06"

Example 6
Find the decimal ratio for sin 15° 24' 50".

Enter 15.2450 (DMS).

Push the button DMS→DD. It shows 15.413888 (DD).

Push the button sin.

It reads .2657898, which may be rounded to .2658

Practice Problems 4
Use the calculator to find the decimal ratio for each angle.

1. cos 7° 34'
2. sin 68° 27' 43"
3. sin 36° 48'
4. tan 24° 12' 12"
5. tan 50° 08' 22"
6. cos 47° 00' 05"

Example 7

What is arcsin (.5222)?

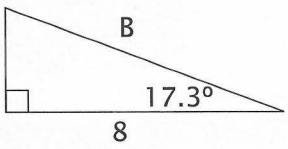
arcsin (.5222) = 31.48° or 31° 28' 48"

When estimating this kind of problem, think of .48° as a little less than half of a degree. A little less than one-half of 60 minutes would be 28 or 29. So 28' 48" (28 minutes 48 seconds) is what we should expect.

Practice Problems 5

1. arctan (.6565) = _____°
2. arcsin (.0911) = _____°
3. arcsin (.8874) = _____°
4. arccos (.9600) = _____°
5. arccos (.3131) = _____°
6. arctan (1.5988) = _____°

Example 8



$$\cos 17.3^\circ = \frac{8}{B}$$

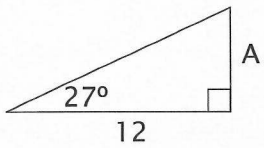
$$B = \frac{8}{\cos 17.3^\circ} = \frac{8}{.9548}$$

$$B = 8.38$$

Practice Problems 6

Use your calculator to solve for the missing side or angle.

1.



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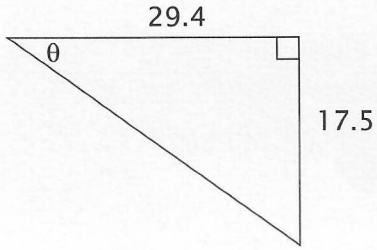

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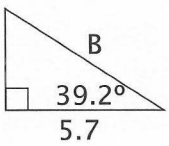

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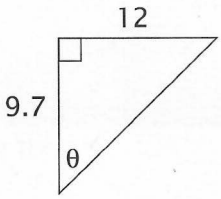

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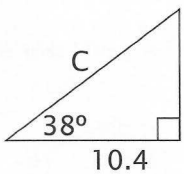

6.