

Week 2 Wednesday 28 August
Chapter Three: Geometry and Trigonometry
Topic: 3.3 The Sine, Cosine and Tangent Ratios: Angles
IB Syllabus: 5.2
Lesson Obj: Students will find angle measures of right triangles
 Students will apply principles of trigonometry to real-life problems.

Review and Intro:

0. Vocab on board: sine, cosine, tangent
1. Homework questions.
2. IB question 2
3. Last class, we found the sides of right triangles. Today, we will find the angles of right triangles.
4. Review Sine, cosine, tangent

Core Lesson:

5. Do 1; students do 2 through 8. [only find missing angle – not whole triangle]
6. Do 9; students do 10 through 12
7. Do 21; students do 22-24

Check for Understanding:

8. Check student work throughout
9. IB Practice 1

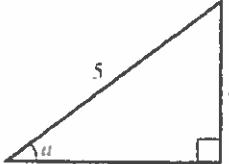
Assignment: Students will Read 110-113
 Students will complete 112-113: 3-12 all

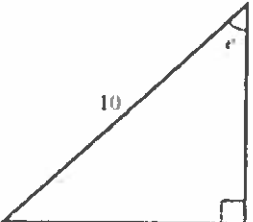
IB Math Studies Year 2

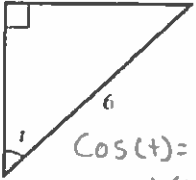
3.3 The Sine, Cosine, and Tangent Ratios: Finding the angles of right triangles

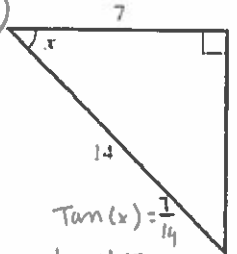
Find the requested angle in each triangle


Soh Cah Toa

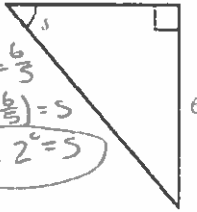
1.  $\sin a = \frac{3}{5}$
 $\sin^{-1}(\frac{3}{5}) = a$
 $a = 36.9^\circ$

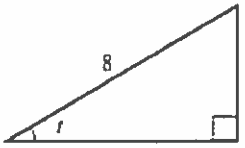
2.  $\sin(c) = \frac{7}{10}$
 $\sin^{-1}(\frac{7}{10}) = c$
 $c = 44.4^\circ$

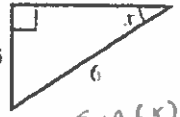
3.  $\cos(t) = \frac{4}{6}$
 $\cos^{-1}(\frac{4}{6}) = t$
 $48.2^\circ = t$

4.  $\tan(x) = \frac{7}{14}$
 $\tan^{-1}(\frac{7}{14}) = x$
 $x = 26.6^\circ$

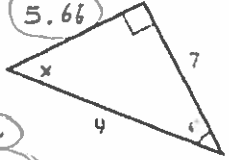
5.  $\tan(m) = \frac{4}{3}$
 $\tan^{-1}(\frac{4}{3}) = m$
 $36.9^\circ = m$

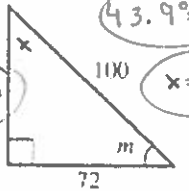
6.  $\tan(s) = \frac{6}{5}$
 $\tan^{-1}(\frac{6}{5}) = s$
 $50.2^\circ = s$

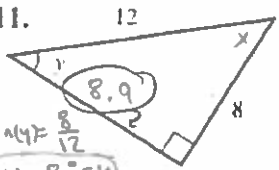
7.  $\cos(t) = \frac{7}{8}$
 $\cos^{-1}(\frac{7}{8}) = t$
 $29^\circ = t$

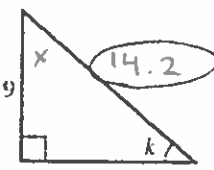
8.  $\sin(x) = \frac{5}{6}$
 $\sin^{-1}(\frac{5}{6}) = x$
 $56.4^\circ = x$

Find all the sides and angles in each triangle.

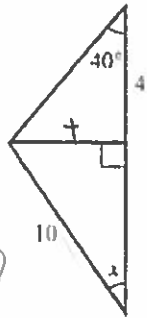
9.  $\cos(c) = \frac{4}{7}$
 $38.9^\circ = c$
 $5.11 = x$
 Other side: 5.66


10.  $\cos(m) = \frac{72}{100}$
 $43.9^\circ = m$
 $x = 69.4$
 Other side: 69.4


11.  $\sin(t) = \frac{8}{12}$
 $41.8^\circ = t$
 $x = 48.2^\circ$
 Other side: 8.9

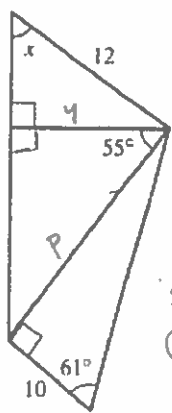
12.  $\tan(k) = \frac{9}{14.2}$
 $k = 39.3^\circ$
 $x = 50.7^\circ$

Find x.

21.  $\tan(40) = \frac{t}{4}$
 $t = 3.4$
 $\sin(x) = \frac{3.4}{10}$
 $x = 19.9^\circ$

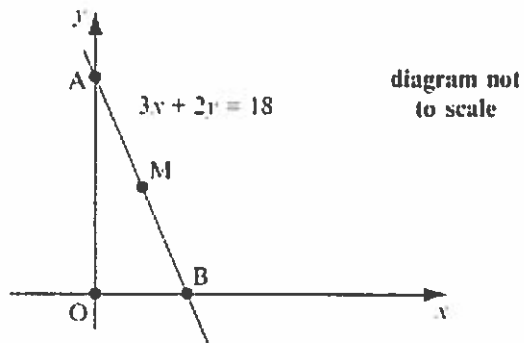
22.  $\tan(37) = \frac{n}{3}$
 $n = 2.3$
 $\tan(x) = \frac{2.3}{7}$
 $x = 18.2^\circ$

23.  $\sin(27.2) = \frac{4}{100}$
 $45.7 = y$
 $\sin(x) = \frac{45.7}{85}$
 $x = 32.5^\circ$

24.  $\tan(61) = \frac{p}{10}$
 $18.04 = p$
 $\cos(55) = \frac{y}{18.04}$
 $y = 10.3$
 $\sin(x) = \frac{10.3}{12}$
 $59.1^\circ = x$

IB Practice

The diagram below shows the line with equation $3x + 2y = 18$. The points A and B are the y- and x-intercepts respectively.



Find the measure of each side and angle of triangle AOB.

$$3x + 2y = 18$$

$$\frac{2y}{2} = \frac{18 - 3x}{2}$$

$$y = 9 - \frac{3}{2}x$$

$$\underline{AO = 9}$$

$$\underline{OB = 6}$$

$$9^2 + 6^2 = x^2$$

$$\sqrt{117} = \sqrt{x^2}$$

$$\underline{10.8 = x}$$

$$\begin{aligned} AO &= 9 \\ OB &= 6 \\ AB &= 10.8 \end{aligned}$$