Curriculum Outcome

A1 Solve problems that require the manipulation and application of formulas related to: perimeter, area, volume, capacity, the Pythagorean theorem, primary trigonometric ratios, income. currency exchange, interest and finance charges.

G2 Demonstrate an understanding of the Pythagorean theorem by: identifying situations that involve right triangles, verifying the formula, applying the formula, solving problems.

G3 Demonstrate an understanding of primary trigonometric ratios (sine, cosine, tangent) by: applying similarity to right triangles, generalizing patterns from similar right triangles, applying the primary trigonometric ratios, and solving problems.

Student Friendly:

Solve for the missing angle.

SOH CAH [TOA]

$\tan\theta = \dfrac{O}{A}$

$\tan\theta = \dfrac{146}{98}$

$\tan\theta = 1.4898$

$\theta = \tan^{-1}(1.4898)$

$\theta = 56$

$180° - 90° - 56 = 34°$

$a^2 + b^2 = c^2$

(triangle labeled: 56°, hyp?, adj 98, 34°, 146 opp.)

LET'S GO OVER HOMEWORK

Homework

Worksheet #3 - Trig Find Theta

Trigonometry – Finding Theta

** For each of the following,

#1
a) 20, 14
b) 13, 10
c) 11, 4
d) 17, 8

e) 12, 9
f) 26, 31
g) 16, 17
h) 5, 4
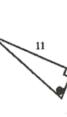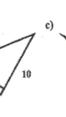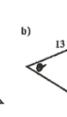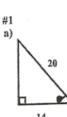
#2 For each triangle
• Decide on which trigonometric ratio you will use to find the missing angle.

Homework Solutions

① $\theta \doteq 46°$
Ⓑ $\theta \doteq 50°$
② $\theta \doteq 70°$
d) $\theta \doteq 28°$
e) $\theta \doteq 53°$
f) $\theta \doteq 57°$
g) $\theta \doteq 43°$
h) $\theta \doteq 37°$

2a) $16°$ c) $46°$ e) $68°$
b) $52°$ d) $74°$ f) $26°$

#1
a) 20, 14
b) 13, 10
c) 11, 4
d) 17, 8

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e) f) g) h)

12 9   26 31   16 17   5 4
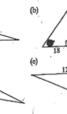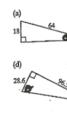
(a) 18 64   (b) 23   (c) 52 36
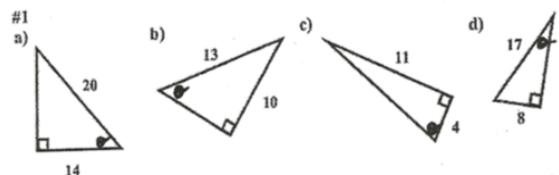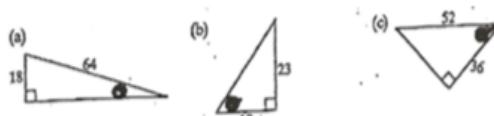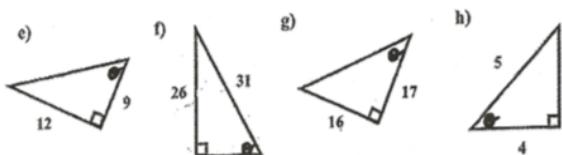
Find the value of <A in each triangle.

a)

a 13 hyp
5 adj
b 12 c
opp

$\sin\theta = \frac{O}{H}$
$\sin\theta = \frac{12}{13}$
$\sin\theta = 0.9231$
$\theta = \sin^{-1}(0.9231)$
$\theta = 67°$

b)

b 25 hyp
7 opp
c 24 Adj a

$\sin\theta = \frac{O}{H}$
$\sin\theta = \frac{7}{25}$
$\sin\theta = 0.28$
$\theta = \sin^{-1}(0.28)$
$\theta = 16°$

Try these:

a) $Tan\sigma = 2.3559$
$\theta = \tan^{-1}(2.3559)$
$\sigma = 67°$
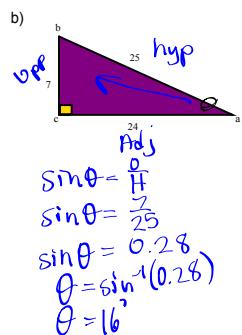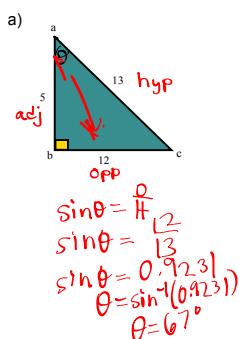
b) $Cos\sigma = 0.8746$
$\theta = \cos^{-1}(0.8746)$
$\sigma = 29°$

When given the angle you can also find the trig ratio. For example, lets say we wanted to know what the value was for the sine of a 35 degree angle.

Sin 35º = ? 0.5736

Enter 35 into your calculator and press the sin key. You find that the answer is 0.5736

Find each of the following values using your calculator. Round to 4 decimal places.

a) sin 35º = 0.5736
b) cos 35º = 0.8192
c) tan 35º = 0.7002
d) sin 88º = 0.9994

e) cos 88º = 0.0349
f) tan 88º = 28.6363
g) sin 90º = 1
h) cos 90º = 0
i) tan 90º = error!

hyp
$\tan\theta = \frac{O}{A}$

Calculate the unknown:

a) $\sin x = 0.9336$

$$X = \sin^{-1}(0.9336)$$
$$X = 69°$$

b) $\cos 35° = x$

$$x = 0.8192$$

c) $\tan 25° = x$

$$X = 0.4663$$

d) $\cos g = 0.6182$

$$g = \cos^{-1}(0.6182)$$
$$g = 52°$$

e) $\tan f = 57$

1) $\cos X$
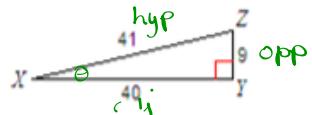
$$\cos \theta = \frac{a}{h}$$

$$\cos \theta = \frac{40}{41}$$

$$\cos \theta = 0.9756$$

$$\theta = \cos^{-1}(0.9756)$$

$$\boxed{\theta = 13°}$$

Attachments

Math 10B - Trigometric Ratio.ia1

TrigTable WS 2.docx

TrigTheta WS 3.docx