WeBWorK Assignment Homework09 is due : 05/21/2016 at 04:10pm EDT.

Reference: Axler, Precalculus, 2nd ed, Sections 5.1, 5.2, and 5.3

Here's the list of **functions and symbols** that WeBWorK understands.

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1. (1 pt) Find the exact value of each expression if defined; **otherwise, input undefined.**

(a) $\sin^{-1}\frac{1}{2} =$ _____ degrees.

(b) $\cos^{-1}\frac{1}{2} =$ _____ degrees.

(c) $\cos^{-1} 6 =$ _____ degrees.

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2. (1 pt) Evaluate the following expressions. Your answer must be in radians.

(a) $\tan^{-1}(-\frac{\sqrt{3}}{3}) =$ _____

(b) $\tan^{-1}(-1) =$ _____

(c) $\tan^{-1}(0) =$ _____

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3. (1 pt) Find the exact value of each expression if defined; **otherwise, input undefined.**

(a) $\tan^{-1}\frac{\sqrt{3}}{3} =$ _____ degrees.

(b) $\tan^{-1}(-\frac{\sqrt{3}}{3}) =$ _____ degrees.

(c) $\sin^{-1}(-6) =$ _____ degrees.

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4. (1 pt) Evaluate the following expressions. Your answer must be an angle in radians and in the interval $[-\pi/2, \pi/2]$. Note that π is already provided in the answer so you just have to write the appropriate multiple. E.g. if the answer is $\pi/2$ you should write 1/2. Do not use decimal numbers. The answer should be a fraction or an integer.

(a) $\tan^{-1}(\tan(-5\pi/6)) =$ _____π

(b) $\tan^{-1}(\tan(3\pi/4)) =$ _____ π

(c) $\tan^{-1}(\tan(7\pi/6)) =$ _____ π

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5. (1 pt) Solve the equation in the interval $[0, 2\pi]$. If there is more than one solution write them separated by commas.

$(\sin(x))^2 = \frac{1}{25}$

$x =$ _____

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6. (1 pt) Solve the equation in the interval $[0, 2\pi]$. If there is more than one solution write them separated by commas.

Hint: To solve this problem you will have to use the quadratic formula, inverse trigonometric functions and the symmetry of the unit circle.

$(\tan x)^2 - 0.3\tan x - 7 = 0$

$x =$ _____

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7. (1 pt) Evaluate the following expressions.

$\cos(\sin^{-1}(\frac{\sqrt{2}}{2}))$ _____

$\tan(\sin^{-1}(0))$ _____

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8. (1 pt) Find the exact value of each expression if defined; otherwise, input undefined.

(a) $\tan(\sin^{-1}\frac{1}{2}) =$ _____.

(b) $\tan(\sin^{-1}(-\frac{1}{2})) =$ _____.

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9. (1 pt) Find the exact value of each expression by sketching a triangle:

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

(b) $\cos(\sin^{-1}\frac{4}{5}) =$ _____.

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10. (1 pt) Find the exact value of each expression by sketching a triangle:

(a) $\cos(\tan^{-1} 2) =$ _____.

(b) $\tan(\cos^{-1}\frac{1}{\sqrt{5}}) =$ _____.

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11. (1 pt) Rewrite the expression as an algebraic expresion in x:

$\tan(\sin^{-1} x) =$ _____.

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12. (1 pt)

Simplify by referring to the appropriate triangle or trigonometric identity.

$\cot\big(\sin^{-1}(x)\big) =$ _____

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13. (1 pt) A triangle has sides of lengths 9 and 4 and unknown included angle θ. If the area of the triangle is 3.6, find the angle θ. Give your answer in radians. If there is more than one possible answer, give them as a comma separated list.

$\theta =$ _____ radians

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14. (1 pt)

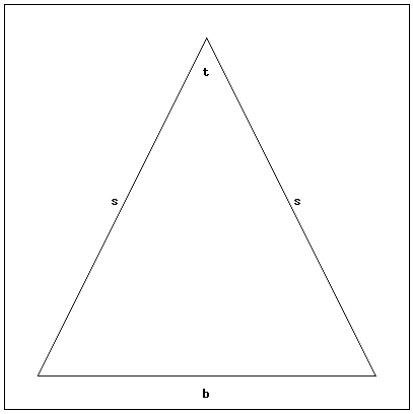
An isosceles triangle has slant height s and angle t opposite the base.

Find a formula for the base length b in terms of the angle t and the slant height s.

$b =$ _____

Find a formula for the enclosed area A in terms of t and s.

$A =$ _____

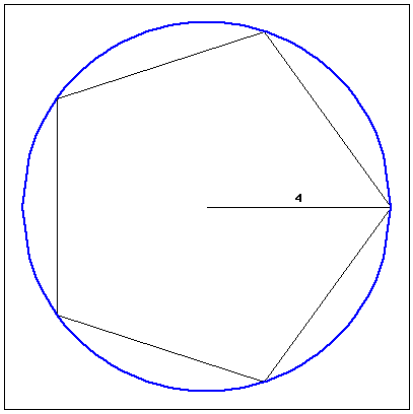


15. (1 pt)

A regular pentagon (5 sided polygon) is inscribed in a circle of radius 4 centimeters.

Find the area it encloses.
Area = _____square centimeters

Find its perimeter.
Perimeter = _____ centimeters

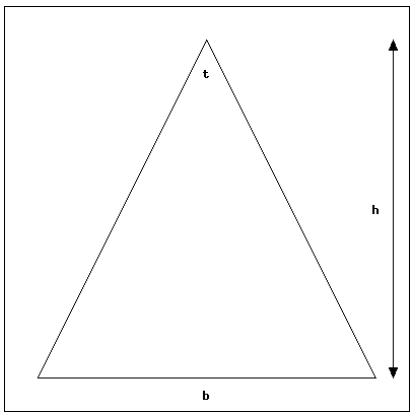


16. (1 pt)

An isosceles triangle has height h and angle t opposite the base.

Find a formula for the base length b in terms of the angle t and the height h.
$b =$ _____

Find a formula for the enclosed area A in terms of t and h.
$A =$ _____



17. (1 pt)

A regular septagon (7 sided polygon) is circumscribed about a circle of radius 7 centimeters.

Find the area it encloses.
Area = _____square centimeters

Find its perimeter.
Perimeter = _____ centimeters