WeBWorK Assignment Homework10 is due : 05/21/2016 at 04:11pm EDT.

Reference: Axler, Precalculus, 2nd ed, Sections 5.4, 5.5, and 5.6

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

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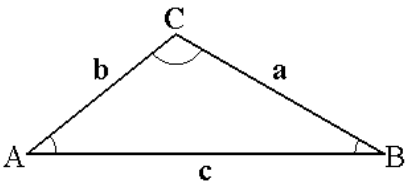
1. (1 pt) Consider the triangle below (not drawn to scale).



Let $a = 9$, $b = 10$ and $c = 16$. Find the measure of angles $\angle A$, $\angle B$ and $\angle C$.

Give your answer in degrees to at least 3 decimal places.

$\angle A$ = _____

$\angle B$ = _____

$\angle C$ = _____

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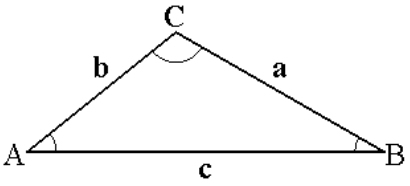
2. (1 pt) Consider the triangle below (not drawn to scale).



Let $a = 5$, $b = 7$ and $\angle C = 120°$. Find the length of side c and measure of the angles, $\angle A$ and $\angle B$ (in degrees). Give your answer to at least 3 decimal places.

c = _____

$\angle A$ = _____

$\angle B$ = _____

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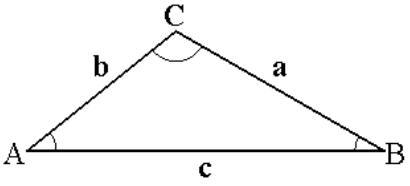
3. (1 pt) Consider the triangle below (not drawn to scale).



Let $b = 7$, $\angle C = 40°$ and $\angle A = 30°$. Find the measure of $\angle B$ (in degrees) and the lengths of the sides a and c.

Give your answer to at least 3 decimal places.

$\angle B$ = _____

a = _____

c = _____

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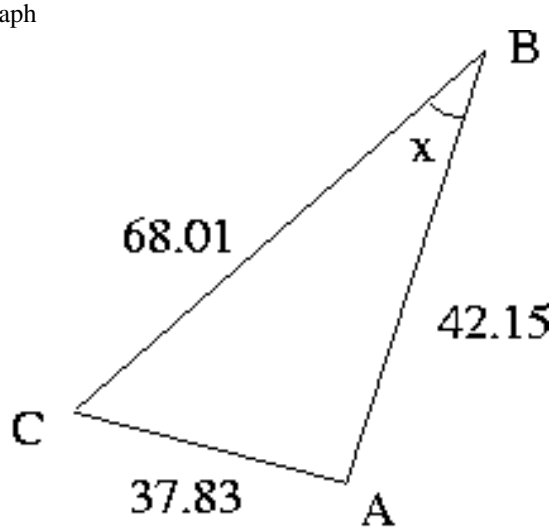
4. (1 pt) **Click on the graph to view a larger graph**

Use the Law of Cosines to find the indicated angle x given in the graph



x = _____ degrees

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5. (1 pt)

A surveyor determines that the angle of elevation to the top of a building from a point on the ground is 30.7°. He then moves back 52.8 feet and determines that the angle of elevation is 24.3°. What is the height of the building?

Round your answer to four decimal places.

Height of building = _____ feet.

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6. (1 pt) Two ships leave a harbor at the same time, traveling on courses that have an angle of 100° between them. If the first ship travels at 24 miles per hour and the second ship travels at 40 miles per hour, how far apart are the two ships after 3.3 hours?

distance = _____

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7. (1 pt) A triangle has vertex angles A, B, and C, with opposite sides a, b, and c, respectively. You are told that $A = 39°$, $a = 8$, and $b = 9$. Find the angle B, in degrees. If there is more than one possible answer, enter them as a comma separated list. If the situation described is impossible, enter "None".

B = _____ degrees

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8. (1 pt) A triangle has vertex angles A, B, and C, with opposite sides a, b, and c, respectively. You are told that $A = 22°$, $a = 10$, and $b = 4$. Find the angle B, in degrees. If there is more than one possible answer, enter them as a comma separated list. If the situation described is impossible, enter "None".

B = _____ degrees

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9. (1 pt) A triangle has vertex angles A, B, and C, with opposite sides a, b, and c, respectively. You are told that $A = 38°$, $a = 3$, and $b = 7$. Find the angle B, in degrees. If there is more than one possible answer, enter them as a comma separated list. If the situation described is impossible, enter "None".

$B =$ _____ degrees

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10. (1 pt) Simplify the expression as much as possible.
$\frac{\sin(2x)}{\cos(x)}$ = _____

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11. (1 pt) Simplify the expression as much as possible.
$\frac{\cos(2t)}{\cos(t)+\sin(t)}$ = _____

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12. (1 pt) Use trigonometric identities to solve $\sin(2\theta) - \cos(\theta) = 0$ exactly for $0 \le \theta < 2\pi$. If there is more than one answer, enter your answers as a comma separated list.
θ = _____

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13. (1 pt) Use trigonometric identities to solve $\tan(2\theta) + \tan(\theta) = 0$ exactly for $0 \le \theta \le \pi$. If there is more than one answer, enter your answers as a comma separated list.
θ = _____

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14. (1 pt) Suppose that $\sin(\theta) = 5/13$ and θ is in the second quadrant. Use trigonometric identities to find the following quantities exactly.
(a) $\cos(\theta)$ = _____
(b) $\sin(2\theta)$ = _____
(c) $\cos(2\theta)$ = _____
(d) $\tan(2\theta)$ = _____

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15. (1 pt) Given $\cos(2\alpha) = \frac{7}{25}$ and 2α is in quadrant II, find exact values of the six trigonometric functions.
Note: You are not allowed to use decimals in your answer.
$\sin(\alpha)$ = _____.
$\cos(\alpha)$ = _____.
$\tan(\alpha)$ = _____.
$\csc(\alpha)$ = _____.
$\sec(\alpha)$ = _____.
$\cot(\alpha)$ = _____.

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16. (1 pt) If $\csc x = 4, 90^\circ < x < 180^\circ$, then
$\sin\frac{x}{2}$ = _____;
$\cos\frac{x}{2}$ = _____;
$\tan\frac{x}{2}$ = _____.

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17. (1 pt) Use a sum or difference identity to find the exact value of each expression:

Note: You are not allowed to use decimals in your answer.
$\cos(285^\circ)$=_____

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18. (1 pt)

Use an identity to find the exact value of each expression:

Note: You are not allowed to use decimals in your answer.
$\cos(274^\circ)\cos(124^\circ) + \sin(274^\circ)\sin(124^\circ)$=_____
$\cos(33^\circ)\cos(87^\circ) - \sin(33^\circ)\sin(87^\circ)$=_____

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19. (1 pt) Use a sum or difference identity to find the exact value of each expression:

Note: You are not allowed to use decimals in your answer.
$\tan(255^\circ)$=_____

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20. (1 pt)

Use an identity to find the exact value of each expression:

Note: You are not allowed to use decimals in your answer.
$\frac{\tan(193^\circ) - \tan(73^\circ)}{1 + \tan(193^\circ)\tan(73^\circ)}$=_____
$\frac{\tan(6^\circ) + \tan(354^\circ)}{1 - \tan(6^\circ)\tan(354^\circ)}$=_____

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21. (1 pt) Given $\sin(\alpha) = \frac{7}{9}$ and $0 < \alpha < \pi/2$ and $\cos(\beta) = \frac{\sqrt{11}}{6}$ and β is in quadrant IV. Use sum and difference formulas to find the following:

Note: You are not allowed to use decimals in your answer.
$\sin(\alpha + \beta)$ =_____

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22. (1 pt) Given $\cos(\alpha) = \frac{\sqrt{17}}{9}$ and $0 < \alpha < \pi/2$ and $\cos(\beta) = -\frac{\sqrt{15}}{8}$ and β is in quadrant II. Use sum and difference formulas to find the following:

Note: You are not allowed to use decimals in your answer.
$\tan(\alpha + \beta)$ =_____

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23. (1 pt) Use the sum formula to fill in the blanks in the identity below.
Note: Give exact answers. Do not use decimals. Your answer should be a fraction or an integer. If the answer requires a square root enter it as *sqrt* . E.g. the square root of two should be entered as sqrt(2).

$\sin(x + \pi/3)$=_____ $\sin(x)$ + _____ $\cos(x)$

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24. (1 pt) If $\cos(x + \frac{\pi}{6}) + \sin(x - \frac{\pi}{3}) = A$, then
the number A = _____.