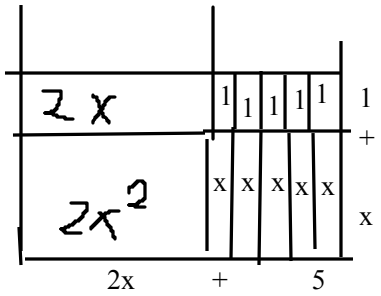
Ch.4 Factoring + Trig Test Version 3 Name:_____

Date:_____ Pd._____

Read all directions carefully.
Watch out for simple, careless errors.
Make sure all figures are labeled appropriately.
Please indicate all answers clearly so they are easy to locate.
Show ALL work you have done to receive full credit for your answer.

1) (5 pts.) Draw a rectangle using algebra tiles for the expression $2x^2 + 7x + 5$. Sketch your rectangle and write the area as a sum and as a product.



Product: (2x+5) (x+1)

Sum: 2x^2 + 7x + 5

2) (3 pts.) **Multiple Choice:** The quadratic expression $6x^2 + 6x - 12$ has several possible sets of factors. Which set of factors below is <u>not</u> a possible answer? Explain how you know.

a. $6(x-1)(x+2)$ b. $(6x-6)(x+2)$

c. $(x-6)(6x+2)$ d. $(3x-3)(2x+4)$

Option c is not a possible answer. The product of the two sets of factors (6x^2-34x-12) does not equal to the quadratic expression given.

(x-6)(6x+2)
6x^2 + 2x - 36x - 12
6x^2 - 34x - 12

3) (8 pts) Factor the following quadratics if possible. If a quadratic cannot be factored, explain why not.

a. $2x^2 - 11x + 12$

(ax+b) (x+c)
a=2, (ac+b) = -11, b * c = 12

(2x-3)(x-4)

b. $y^2 + 7y + 7$

Cannot be factored

There are no two integers that the product and the sum equal 7

c. $5m^2 - 14m + 8$

(ax+b) (x+c)
a=5, (ac+b) = -14, b * c = 8

(5m-4)(m-2)

d. $15p^2 - 3p$

3*5*p*p-3p, the 3p is common between the two terms, therefore :

3p(5p-1)

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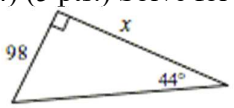
4) (5 pts.) Solve for the missing side length. Show your work. Round lengths to the nearest tenth.

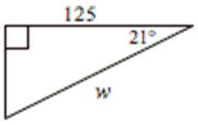


tan (44) = 98/x

x=98/tan(44)

x=101.5

5) (5 pts.) Use trigonometric ratios to solve for the variable. Show your work. Round lengths to the nearest tenth.

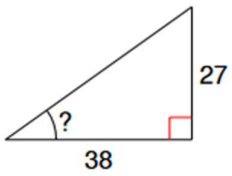


Cos (21)= 125/w

w= 125/cos(21)

w= 133.9

6) (3 pts.) Solve for the missing angle. Show your work.

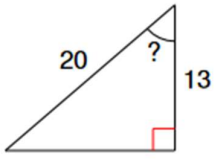


tan(x)=27/38

x=tan^-1(27/38)

x=35.4 degrees

7) (3 pts.) Solve for the missing angle. Show your work.



cos(x) = 13/20

x=cos^-1(13/20)

x=49.5 degrees

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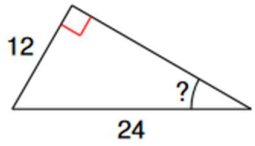
8) (3 pts.) Solve for the missing angle. Show your work.

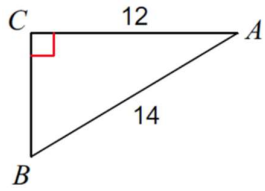


sin (x) = 12/24

x= sin^-1 (12/24)

x=30 degrees

9.) (6 pts.) Solve the triangle for all missing side lengths and angle measures. Show your work to receive full credit.

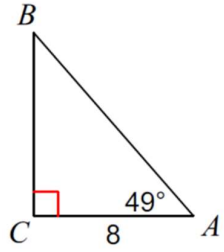


$\angle A =$ 31.0 degrees cos (A)=12/14, A=cos^-1(12/14)

$\angle B =$ 59 degrees Angle B=180-90-31 using the rule "the sum of the three angles in a triangle is equal to 180 degrees"

$a =$ 7.2 a^2+b^2=c^2, a^2=c^2-b^2, a=(c^2-b^2)^1/2, a=(14^2 - 12^2)^1/2

10) (6 pts) Solve the triangle for all missing side lengths and angle measures. Show your work to receive full credit.



$\angle B =$ 41 degrees Angle B= 180 - 90 - 49

$a =$ 9.2 tan(49)=a/8, a=tan(49) *8

$c =$ 12.2 cos(49)=8/c, c= 8/cos(49),

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Bonus) (4 pts) Factor each of the expressions below, if possible. Show your work.

a. $169x^2 - 289$

(13x)^2 - (17)^2

(13x - 17) (13x + 17)

c. $16x^2 - 8x + 1$

(ax)^2 - 2abx + b

(4x)^2 - 2*4*1*x +1

(4x-1) (4x-1)

b. $x^2 + 10x + 25$

(x+a) (x+b)

such that a + b = 10 and a * b = 25

a=5 and b=5

(x+5) (x+5)

d. $x^2 - \frac{1}{4}$

x^2 - (1/2)^2

(X - 1/2) (x+1/2)