Bellwork Alg 2 Tuesday, June 11, 2019

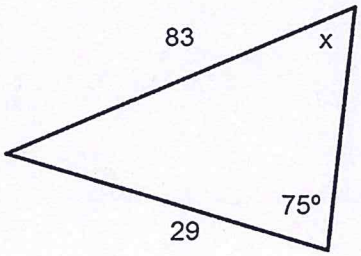
1. Simplify. $\dfrac{\frac{12}{5ef^3} - \frac{3f^2}{4e^3}}{\frac{6e}{8f^2} + \frac{7}{10e^4f^6}}$

2. Use this function to state each of the following, if any: $y = \dfrac{6x^2 - 6x - 36}{3x^3 + 21x^2 + 30x} = \dfrac{6(x+2)(x-3)}{3x(x+5)(x+2)}$

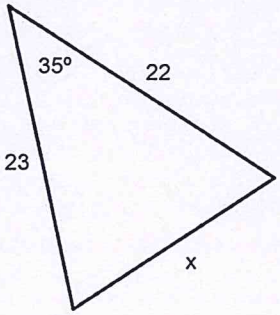
Holes: VA: HA:

3. Find the value of x to the nearest hundredth.

a)



b)



4. Simplify this trigonometric expression: $\dfrac{\text{Tan}x + \text{Cot}x}{\text{Sec}x}$

5. The password to your bank account must be 3 numbers followed by 2 letters. Supposed neither numbers or letters can repeat. How many different passwords are possible? Letters are not case sensitive.

6. Given $\text{Cot}\theta = \frac{20}{21}$ find the following as ratios: a) $\text{Csc}\theta$ b) $\text{Sec}\theta$

7. The probability that during the bowling match get a strike is $\frac{2}{15}$, the probability that I get a spare is $\frac{4}{9}$. Find the following probability as a percent to the nearest hundredth. P(get a strike or get a spare) =

8. At a carnival game I get to throw one ball and win a prize determined by the point value of the bin it lands in. The probability that I get it in the 10pt bin is $\frac{3}{20}$, the probability that I get it in the 5 pt bin is $\frac{5}{11}$. Find the following probability as a percent to the nearest hundredth.
P(10pt bin or 5 pt bin) =

9. The value of a piece of real estate is increasing 4.8% each year. This year the value was $120,000.
a) Find the value of the property in 2025.
b) Find the value of the property in 2010.
c) In how many years will it be worth $300,000? Round to the nearest tenth.

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ANSWERS

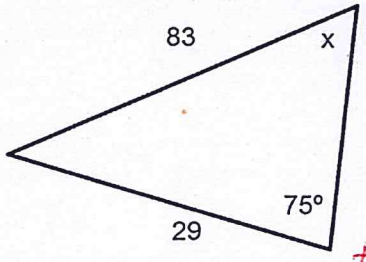
1. Simplify. $\dfrac{\left(\frac{12}{5ef^3}-\frac{3f^2}{4e^3}\right)}{\left(\frac{6e}{8f^2}+\frac{7}{10e^4f^6}\right)}\cdot\dfrac{40e^4f^6}{40e^4f^6} = \dfrac{96e^3f^3-30ef^8}{30e^5f^4+28}$

2. Use this function to state each of the following, if any: $y=\dfrac{6x^2-6x-36}{3x^3+21x^2+30x}=\dfrac{6(x+2)(x-3)}{3x(x+5)(x+2)}$

Holes: $x=-2$ VA: $x=0,-5$ HA: $y=0$

3. Find the value of x to the nearest hundredth.

a)



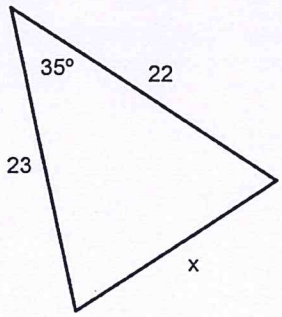
$\dfrac{\sin 75^\circ}{83}=\dfrac{\sin x}{29}$

$x=19.72^\circ$

$\sin x=\dfrac{29\sin 75^\circ}{83}$

$x=\sin^{-1}\left(\dfrac{29\sin 75^\circ}{83}\right)$

b)



$x^2=22^2+23^2-2(22)(23)\cos 35^\circ$

$x=13.57$

4. Simplify this trigonometric expression: $\dfrac{\tan x+\cot x}{\sec x}$

$\dfrac{\frac{\sin}{\sin}\cdot\frac{\sin}{\cos}+\frac{\cos}{\sin}\cdot\frac{\cos}{\cos}}{\frac{1}{\cos}}=\dfrac{\frac{\sin^2}{\sin\cos}+\frac{\cos^2}{\sin\cos}}{\frac{1}{\cos}}=\dfrac{\frac{\sin^2+\cos^2}{\sin\cos}}{\frac{1}{\cos}}$

$=\dfrac{\frac{1}{\sin\cos}}{\frac{1}{\cos}}=\dfrac{1}{\sin\cos}\cdot\dfrac{\cos}{1}=\dfrac{1}{\sin}=\csc x$

5. The password to your bank account must be 3 numbers followed by 2 letters. Supposed neither numbers or letters can repeat. How many different passwords are possible? Letters are not case sensitive.

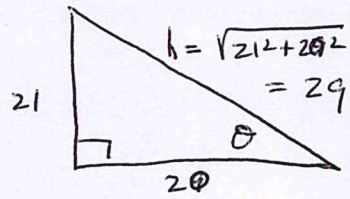
$\underbrace{10\cdot 9\cdot 8}_{\#s}\cdot\underbrace{26\cdot 25}_{\text{letters}}=468{,}000$

6. Given $\cot\theta = \frac{20}{21}$ find the following as ratios:

$\tan\theta = \frac{21}{20} = \frac{\text{opp leg}}{\text{adj leg}}$

a) $\csc\theta = \frac{29}{21}$

b) $\sec\theta = \frac{29}{20}$



$\sin\theta = 21/29$

$\cos\theta = 20/29$

7. The probability that during the bowling match get a strike is $\frac{2}{15}$, the probability that I get a spare is $\frac{4}{9}$. Find the following probability as a percent to the nearest hundredth.

P(get a strike or get a spare) =

$\frac{2}{15} + \frac{4}{9} - \frac{2}{15}\cdot\frac{4}{9} = 51.85\%$

NOT MUTUALLY EXCLUSIVE

8. At a carnival game I get to throw one ball and win a prize determined by the point value of the bin it lands in. The probability that I get it in the 10pt bin is $\frac{3}{20}$, the probability that I get it in the 5 pt bin is $\frac{5}{11}$. Find the following probability as a percent to the nearest hundredth.

P(10pt bin or 5 pt bin) =

ARE MUTUALLY EXCLUSIVE

$\frac{3}{20} + \frac{5}{11} = 60.45\%$

9. The value of a piece of real estate is increasing 4.8% each year. This year the value was $120,000.

a) Find the value of the property in 2025.

$x = 2025 - 2019 = 6$

$y = 120{,}000(1.048)^6 = \$158{,}982.36$

$100 + 4.8 = 104.8\%$

$b = 1.048$

$y = 120{,}000(1.048)^x$

b) Find the value of the property in 2010.

$x = 2010 - 2019 = -9$

$y = 120{,}000(1.048)^{-9} = \$78{,}691.84$

c) In how many years will it be worth $300,000? Round to the nearest tenth.

$\frac{300{,}000}{120{,}000} = \frac{120{,}000(1.048)^x}{120{,}000}$

$2.5 = 1.048^x$

$\log_{1.048}(2.5) = x$

$x = 19.5$