Circle final answers *(were applicable)*

TRIG EQUATIONS & IDENTITIES PRACTICE QUIZ 34 %

Name: _____

Fun-scale: off the charts

1. Consider the equation $3cosx - 5 = 5cosx - 4$.

   (a) Algebraically determine any solutions on $-180° \leq x < 180°$ — 2

   (b) State a general solution — 1

3

2. Albebraically solve on $0 \leq \theta < 2\pi$.

   2 ➔ $2\cos^2\theta - 3\cos\theta + 1 = 0$

4

3. Solve on $0 \leq \theta < 360°$ ➔ $3csc\theta + 4 = 0$ — 2

   Round answers to the nearest degree.

4. Simplify each expression to one of the three primary trig functions. ($sinx$, $cosx$, or $tanx$)

a) $secx\ cotx\ sin^2x$ — 1

b) $\frac{sinx}{tanx}$ — 1

c) $\frac{sin2\theta}{2cos\theta}$ — 1

7

d) $\frac{cos2\theta + 1}{2cos\theta}$ — 2

e) $\frac{cos^3x}{cos2x + sin^2x}$ — 2

5. Write each as a single trigonometric function.

3 **a)** $cos43°cos28° - sin43°sin28°$

b) $2cos^2\frac{\pi}{12} - 1$

c) $\frac{2tan76°}{1 - tan^276°}$

17

6. Consider the equation $\frac{secx}{tanx + cotx} = sinx$

a) Numerically verify the possibility of an identity using $x = 60°$. **What value do you get for both sides?**

1

b) State the non-permissible values of the equation on the domain $0° \leq x < 360°$

2

3

(c) BONUS Prove this identity **(on scrap paper)**

7. Simplify $\boldsymbol{cos}(\frac{\boldsymbol{\pi}}{\boldsymbol{2}} - \boldsymbol{x})$ using a difference identity.

2

8. Given that θ is in quadrant II and $sin\theta = \frac{5}{13}$, determine the exact value of:

a) $cos\ 2\theta$

2

b) $\sin(\theta + 90°)$

2

4

9. If $\angle A$ is in quadrant I with $cosA = \frac{12}{13}$ and $\angle B$ is in quadrant III with $sinB = \frac{-4}{5}$, evaluate $\sin(A + B)$

2

10. Use an appropriate sum/difference formula to determine the exact value of: ***show all steps on scrap paper – provide simplified exact-value answers here***

4

a) $sin165°$

2

b) $tan\frac{17\pi}{12}$

2

11. Prove each identity

a) $\frac{cosx}{cotx} * cscx$

2

b) $sinx + cosxcotx = cscx$

2