

Name _____ Summative Assessment Trig Identities 2 Period _____

Use of the sum and difference rules; Use of the double angle rules

ALL Answers must be stated in EXACT form. NO DECIMALS. Failure to support your work will result in loss of available points

Use the sum rules to derive each of the following double angle rules

1. $\sin(2x) = 2 \sin x \cos x$

2. $\cos(2x) = \cos^2 x - \sin^2 x$

3. $\cos(2x) = 1 - 2\sin^2 x$

Directions: Rewrite the following expressions as a single trigonometric expression

4. $\frac{\tan(97) - \tan(23)}{1 + \tan(97)\tan(23)} =$

5. $\sin(19) \cos(48) - \sin(48) \cos(19) =$

6. $2\sin(19)\cos(19) =$

7. $2\cos^2(130) - 1 =$

8. $\cos(\theta) \cos(50) - \sin(\theta) \sin(50) =$

9. $1 - 2\sin^2(65) =$

10. $\frac{2\tan(64)}{1 - \tan^2(64)} =$

11. $\sin(19) \cos(16) + \sin(16) \cos(19) =$

12. $\cos^2(6\theta) - \sin^2(6\theta) =$

13. $\cos(v) \cos(150) + \sin(v) \sin(150) =$

14. $\frac{\tan(64) + \tan(22)}{1 - \tan(64)\tan(22)} =$

Directions: Determine the exact values of each of the trigonometric expressions through the use of sum, difference, or double angle identities CLEARLY SHOW YOUR WORK

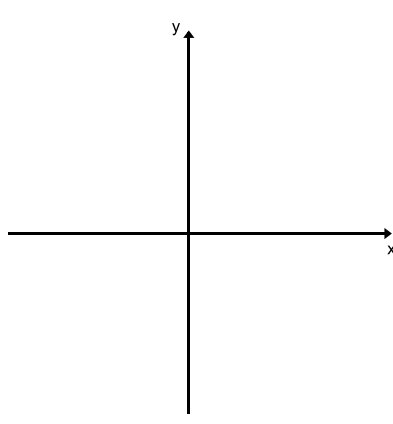
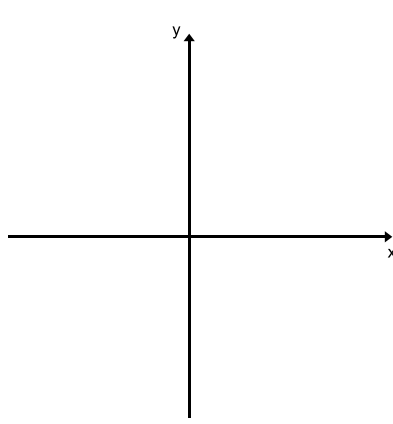
(Simplification of RADICAL expressions is unnecessary, but may earn additional bonus points with proper paper and pencil support)

15. $\cos(285^\circ)$

16. $\sin(75^\circ)$

17. $\tan\left(\frac{17\pi}{12}\right)$

Directions: Given that $\cos(\theta) = \frac{7}{25}$ and θ lies in quadrant 4 and $\cot(\beta) = \frac{9}{40}$ and β lies in quadrant 3 the answer the following questions

<p>Sketch and label the sides of right triangle related to angle θ</p> 	<p>Sketch and label the sides of right triangle related to angle β</p> 
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Determine the exact value of each of the following trigonometric expressions using the sum and difference rules or the double angle rules

18. $\sin(2\theta) =$

19. $\cos(\theta - \beta) =$

20. $\tan(\theta + \beta) =$

Extra Credit #1: Use the sum and double angle rules to write a TRIPLE angle rule for $\sin(3x)$

Extra Credit #2: We have been talking about mathematical identities, but there are many ways to think about identities in general. Name your favorite use of a “secret identity” in popular culture, support your choice.

Extra Credit #3: Another way to think about the word “identity” is how you would like the world to perceive you both now and in the future. How do you hope the world perceives you now?

Extra Credit #4: Another way to think about the word “identity” is how you would like the world to perceive you both now and in the future. How do you hope the world will perceive you in the future?

Name _____ Summative Assessment Trig Identities 2 Hour _____

Use of the sum and difference rules; Use of the double angle rules

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Use the sum rules to derive each of the following double angle rules

1. $\cos(2x) = \cos^2 x - \sin^2 x$

2. $\sin(2x) = 2 \sin x \cos x$

3. $\cos(2x) = 2\cos^2 x - 1$

Directions: Rewrite the following expressions as a single trigonometric expression

4. $\frac{2\tan(48)}{1-\tan^2(48)}=$

5. $\sin(42)\cos(64) + \sin(64)\cos(42)=$

6. $\cos^2(9\theta) - \sin^2(9\theta)=$

7. $\cos(v)\cos(105) - \sin(v)\sin(105)=$

8. $\frac{\tan(16)-\tan(22)}{1+\tan(16)\tan(22)}=$

9. $\frac{\tan(79)+\tan(23)}{1-\tan(79)\tan(23)}=$

10. $\sin(49)\cos(18) + \sin(49)\cos(18)=$

11. $2\sin(91)\cos(91) =$

12. $2\cos^2(310) - 1 =$

13. $\cos(\theta)\cos(85) + \sin(\theta)\sin(85)=$

14. $1 - 2\sin^2(120)=$

Directions: Determine the exact values of each of the trigonometric expressions through the use of sum, difference, or double angle identities CLEARLY SHOW YOUR WORK

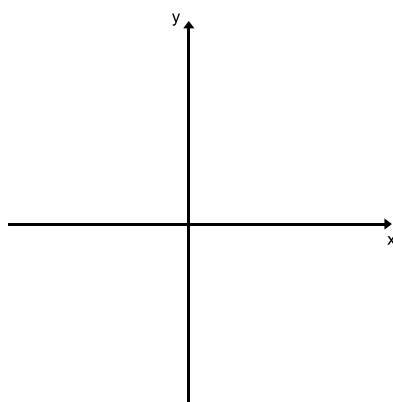
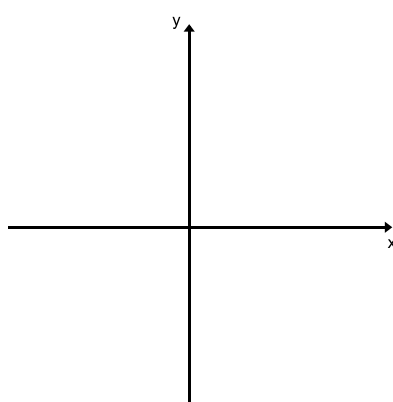
(Simplification of RADICAL expressions is unnecessary, but may earn additional bonus points with proper paper and pencil support)

15. $\sin(345^\circ)$

16. $\cos(105^\circ)$

17. $\tan\left(\frac{19\pi}{12}\right)$

Directions: Given that $\sin(\theta) = \frac{5}{13}$ and θ lies in quadrant 2 and $\sec(\beta) = \frac{-40}{9}$ and β lies in quadrant 3 the answer the following questions

Sketch and label the sides of right triangle related to angle θ 	Sketch and label the sides of right triangle related to angle β 
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Determine the exact value of each of the following trigonometric expressions using the sum and difference rules or the double angle rules

18. $\cos(2\theta) =$

19. $\sin(\theta - \beta) =$

20. $\tan(\theta - \beta) =$

Extra Credit #1: Use the sum and double angle rules to write a TRIPLE angle rule for $\sin(3x)$

Extra Credit #2: We have been talking about mathematical identities, but there are many ways to think about identities in general. Name your favorite use of a “secret identity” in popular culture, support your choice.

Extra Credit #3: Another way to think about the word “identity” is how you would like the world to perceive you both now and in the future. How do you hope the world perceives you now?

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