Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_2017-2018 Trigonometry Midterm Review 1 10-3-17 Hour 1 2 3 4 5 6 7

**Goal: Add and subtract expressions involving fractions**

|  |  |  |
| --- | --- | --- |
| 1.
 | 1.
 | 1.
 |
| State the ANSWER in EXACT RADIANS1.
 | State the ANSWER in EXACT RADIANS1.
 | State the ANSWER in EXACT RADIANS1.
 |
| State the ANSWER in EXACT RADIANS1.
 | State the ANSWER in EXACT RADIANS1.
 | State the ANSWER in EXACT RADIANS1.
 |

**Goal: Multiply and divide expressions involving fractions**

|  |  |  |
| --- | --- | --- |
| 1.
 | 1.
 | 1.
 |
| 1.
 | 1.
 | 1.
 |

**Goal: Graphing Rational Functions: State the parts of each of the rational functions and sketch and label related graphs**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
| 1. Y intercept
2. X intercept(s)
3. Vertical asymptote(s)
4. Horizontal asymptote
5. Slant Asymptote if possible
6. Hole if possible
 | 1. Y intercept
2. X intercept(s)
3. Vertical asymptote(s)
4. Horizontal asymptote
5. Slant Asymptote if possible
6. Hole if possible
 | 1. Y intercept
2. X intercept(s)
3. Vertical asymptote(s)
4. Horizontal asymptote
5. Slant Asymptote if possible
6. Hole if possible
 | 1. Y intercept
2. X intercept(s)
3. Vertical asymptote(s)
4. Horizontal asymptote
5. Slant Asymptote if possible
6. Hole if possible
 |

**Goal: Determine the coterminal angles related to a given angle in degrees or radians**

**IF YOU ARE GIVEN RADIANS YOU ARE EXPECTED TO ANSWER IN RADIANS**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
| 1. Smallest Positive Coterminal Angle
2. Negative Coterminal Angle closest to 0
3. ALL coterminal angles
 | 1. Smallest Positive Coterminal Angle
2. Negative Coterminal Angle closest to 0
3. ALL coterminal angles
 | 1. Smallest Positive Coterminal Angle
2. Negative Coterminal Angle closest to 0
3. ALL coterminal angles
 | 1. Smallest Positive Coterminal Angle
2. Negative Coterminal Angle closest to 0
3. ALL coterminal angles
 |

**Goal: Sketch angles and determine the number of rotations**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
| 1. Number of Rotations
2. Sketch

 | 1. Number of Rotations
2. Sketch

 | 1. Number of Rotations
2. Sketch

 | 1. Number of Rotations
2. Sketch

 |

**Goal: Determine the exact and the approximate measure of the reference angle and the angle formed by a point in the coordinate plane and the x axis.**

|  |  |  |
| --- | --- | --- |
| A (-7, 24) | B (0,6) | C (5,-7) |
| 1. Classify the LARGEST related angle
 | 1. Classify the LARGEST related angle
 | 1. Classify the LARGEST related angle
 |
| Q1 | Q2 | Q3 | Q4 | On axes | Q1 | Q2 | Q3 | Q4 | On axes | Q1 | Q2 | Q3 | Q4 | On axes |
| 1. Exact reference angle
2. Exact angle stated with a positive angle
3. Negative Coterminal angle closest to 0
 | 1. Approximate reference angle
2. Approximate angle stated with a positive angle
3. All Coterminal Angles (must state the variable restriction)
 | 1. Exact reference angle
2. Exact angle stated with a positive angle
3. Negative Coterminal angle closest to 0
 | 1. Approximate reference angle
2. Approximate angle stated with a positive angle
3. All Coterminal Angles (must state the variable restriction)
 | 1. Exact reference angle
2. Exact angle stated with a positive angle
3. Negative Coterminal angle closest to 0
 | 1. Approximate reference angle
2. Approximate angle stated with a positive angle
3. All Coterminal Angles (must state the variable restriction)
 |

|  |  |  |
| --- | --- | --- |
| D (-8, -6) | E (-6,0) | F (0,-7) |
| 1. Classify the LARGEST related angle
 | 1. Classify the LARGEST related angle
 | 1. Classify the LARGEST related angle
 |
| Q1 | Q2 | Q3 | Q4 | On axes | Q1 | Q2 | Q3 | Q4 | On axes | Q1 | Q2 | Q3 | Q4 | On axes |
| 1. Exact reference angle
2. Exact angle stated with a positive angle
3. Negative Coterminal angle closest to 0
 | 1. Approximate reference angle
2. Approximate angle stated with a positive angle
3. All Coterminal Angles (must state the variable restriction)
 | 1. Exact reference angle
2. Exact angle stated with a positive angle
3. Negative Coterminal angle closest to 0
 | 1. Approximate reference angle
2. Approximate angle stated with a positive angle
3. All Coterminal Angles (must state the variable restriction)
 | 1. Exact reference angle
2. Exact angle stated with a positive angle
3. Negative Coterminal angle closest to 0
 | 1. Approximate reference angle
2. Approximate angle stated with a positive angle
3. All Coterminal Angles (must state the variable restriction)
 |

**Goal: Determine the exact measure of the SPECIAL reference angle and the SPECIAL angle formed by a point in the coordinate plane and the x axis.**

|  |  |  |
| --- | --- | --- |
| G  | H  | I (0,-1) |
| 1. Circle the most appropriate
 | 1. Circle the most appropriate
 | 1. Circle the most appropriate
 |
| 30/60/90 | 45/45/90 | Quadrantal angle | 30/60/90 | 45/45/90 | Quadrantal angle | 30/60/90 | 45/45/90 | Quadrantal angle |
| 1. Classify the LARGEST related angle by quadrant or presence on axes
 | 1. Classify the LARGEST related angle by quadrant or presence on axes
 | 1. Classify the LARGEST related angle by quadrant or presence on axes
 |
| Q1 | Q2 | Q3 | Q4 | On axes | Q1 | Q2 | Q3 | Q4 | On axes | Q1 | Q2 | Q3 | Q4 | On axes |
| 1. Circle the angle that is related to given point
 | 1. Circle the angle that is related to given point
 | 1. Circle the angle that is related to given point
 |
| 30° | 120° | 210° | 300° | 0° | 30° | 120° | 210° | 300° | 0° | 30° | 120° | 210° | 300° | 0° |
| 45° | 135° | 225° | 315° | 90° | 45° | 135° | 225° | 315° | 90° | 45° | 135° | 225° | 315° | 90° |
| 60° | 150° | 240° | 330° | 180° | 60° | 150° | 240° | 330° | 180° | 60° | 150° | 240° | 330° | 180° |
| 270° | 270° | 270° |
| 1. Circle the angle that is related to given point in radians
 | 1. Circle the angle that is related to given point in radians
 | 1. Circle the angle that is related to given point in radians
 |
|  |  |  |  | 0 |  |  |  |  | 0 |  |  |  |  | 0 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |

|  |  |  |
| --- | --- | --- |
| J  | K  | L (1,0) |
| 1. Circle the most appropriate
 | 1. Circle the most appropriate
 | 1. Circle the most appropriate
 |
| 30/60/90 | 45/45/90 | Quadrantal angle | 30/60/90 | 45/45/90 | Quadrantal angle | 30/60/90 | 45/45/90 | Quadrantal angle |
| 1. Classify the LARGEST related angle by quadrant or presence on axes
 | 1. Classify the LARGEST related angle by quadrant or presence on axes
 | 1. Classify the LARGEST related angle by quadrant or presence on axes
 |
| Q1 | Q2 | Q3 | Q4 | On axes | Q1 | Q2 | Q3 | Q4 | On axes | Q1 | Q2 | Q3 | Q4 | On axes |
| 1. Circle the angle that is related to given point
 | 1. Circle the angle that is related to given point
 | 1. Circle the angle that is related to given point
 |
| 30° | 120° | 210° | 300° | 0° | 30° | 120° | 210° | 300° | 0° | 30° | 120° | 210° | 300° | 0° |
| 45° | 135° | 225° | 315° | 90° | 45° | 135° | 225° | 315° | 90° | 45° | 135° | 225° | 315° | 90° |
| 60° | 150° | 240° | 330° | 180° | 60° | 150° | 240° | 330° | 180° | 60° | 150° | 240° | 330° | 180° |
| 270° | 270° | 270° |
| 1. Circle the angle that is related to given point in radians
 | 1. Circle the angle that is related to given point in radians
 | 1. Circle the angle that is related to given point in radians
 |
|  |  |  |  | 0 |  |  |  |  | 0 |  |  |  |  | 0 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |

**Goal: Use the given trigonometric ratio and its restriction to state desired trigonometric ratios based on given and restriction. Don’t Forget “All Students Take Calculus”**

|  |  |  |
| --- | --- | --- |
|  |  |  |
| 1. State cos M
2. State tan M
3. Find M in degrees
 | 1. State sin N
2. State tan N
3. Find N in degrees
 | 1. State sin P
2. State cos P
3. Find P in degrees
 |

|  |  |  |
| --- | --- | --- |
|  |  |  |
| 1. State cos Q
2. State tan Q
3. Find Q in radians
 | 1. State sin R
2. State tan R
3. Find R in radians
 | 1. State sin S
2. State cos S
3. Find S in radians
 |

**Goal: Graph any angle regardless of size or method of describing angle**

|  |  |  |
| --- | --- | --- |
| 1. Plot 11°
 | 1. Plot 11 radians
 | 1. Plot 11π radians
 |
|  |  |  |
| 1. Plot -123°
 | 1. Plot -12.3 radians
 | 1. Plot  radians
 |
|  |  |  |

**Goal: Know all of degree and radians related to SPECIAL angle measurements**

1. **Complete table**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Degree | 0° | 30° | 45° | 60° | 90° | 120° | 135° | 150° | 180° |
| Exact Radian |  |  |  |  |  |  |  |  |  |
| Degree | 180° | 210° | 225° | 240° | 270° | 300° | 315° | 330° | 360° |
| ExactRadian |  |  |  |  |  |  |  |  |  |

**Goal: Know all of trigonometric ratios related to SPECIAL angle measurements**

1. **Complete Table**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Degree | 0° | 30° | 45° | 60° | 90° | 120° | 135° | 150° | 180° |
| Exact Radian |  |  |  |  |  |  |  |  |  |
| Sin |  |  |  |  |  |  |  |  |  |
| Cos |  |  |  |  |  |  |  |  |  |
| Tan |  |  |  |  |  |  |  |  |  |
| Degree | 180° | 210° | 225° | 240° | 270° | 300° | 315° | 330° | 360° |
| ExactRadian |  |  |  |  |  |  |  |  |  |
| Sin |  |  |  |  |  |  |  |  |  |
| Cos |  |  |  |  |  |  |  |  |  |
| Tan |  |  |  |  |  |  |  |  |  |

**Goal: Be able to determine all of the points on the unit circle**

1. **Complete the table with the exact fraction coordinates related to the SPECIAL angles related to the UNIT CIRCLE**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **A** | **B** | **C** | **D** | **E** |
| **F** | **G** | **H** | **I** | **J** |
| **K** | **L** | **M** | **N** | **O** |
| **P** |

 |

**Level Two Questions about rational function’s graphs: Things that make you think!**

**Assume m, n, p are positive integers**

You are given 

1. Give an example of n and m that would create a hole in your rational function’s graph
2. Give an example of n and m that DO NOT create a hole in your rational function’s graph, but still have vertical asymptotes that are integers
3. Explain why has a horizontal asymptote of 0, regardless of the value of n or m
4. Give a value of n and m that guarantee that there is NO x intercept

You are given 

1. Give an example of n, m, and p that would create a hole in your rational function’s graph
2. Give an example of n, m, and p that DO NOT create a hole in your rational function’s graph, but still have vertical asymptotes that are integers
3. Explain why has a horizontal asymptote of 1, regardless of the value of n, m, p
4. Explain why this rational function’s graph must pass through the origin

You are given 

1. Give an example of n, m, and p that would create a hole in your rational function’s graph
2. Give an example of n, m, and p that DO NOT create a hole in your rational function’s graph, but still have vertical asymptotes that are integers
3. Explain why has a horizontal asymptote of , regardless of the value of n, m, p
4. Explain why this rational function’s graph WILL NOT pass through the origin

You are given 

1. Give an example of n, m, and p that would create a hole in your rational function’s graph
2. Give an example of n, m, and p that DO NOT create a hole in your rational function’s graph, but still have vertical asymptotes that are integers
3. Explain why has a horizontal asymptote of , regardless of the value of n, m, p
4. Explain why this rational function’s graph WILL NOT pass through the origin
5. Explain why this rational function WILL NOT have a x intercept

**Level Two Questions about operations with rational expressions: Things that make you think!**

**Assume m, n, p, q, r, s, t, and u are DIFFERENT positive integers**

You are given 

1. Determine values of m, n, p, q, r, s, t, u that will yield a number for an answer when this is completely simplified
2. Determine values of m, n, p, q, r, s, t, u that will yield a linear expression in the numerator and a linear expression in the denominator for an answer when this is completely simplified

You are given 

1. Determine values of m, n, p, q, r, s, t, u that will yield an expression without a linear term in the numerator and an expression without a linear term in the denominator for an answer when this is completely simplified.

**Level Two Questions about radians: Things that make you think!**

1. Define a radian and support your definition with a picture
2. Explain why mathematicians and students should want their EXACT radian measures to be expressed with π, instead of without π. Use pictures to support your explanation

**The exam itself**

* You will be asked to answer at least two level 2 questions on the midterm.
* There will be a variety of formats of questions ranging from multiple choice, matching, and free response.
* You will need to bring a scientific calculator to class.
* No extended time on this exam unless specifically allowed by an IEP or a 504
* Any extended time given related to IEP or 504 must be completed on the same day outside of class time.
* You will be given a unit circle and special angles chart on the day of the midterm, but you will be required to complete one prior to the exam for a portion of the midterm grade.