

Trigonometry

Name: \_\_\_\_\_

Study Guide 15

Class: \_\_\_\_\_

Due Date: \_\_\_\_\_

Score: \_\_\_\_\_

No Work  $\Leftrightarrow$  No Points

Use Pencil Only  $\Leftrightarrow$  Be Neat & Organized

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1. Consider  $\sin 35^\circ \cos 55^\circ + \cos 35^\circ \sin 55^\circ$

(a) (2 points) Use your calculator to find its exact value.

(a) \_\_\_\_\_

(b) (2 points) Use a known formula to simplify it, and then evaluate it.

(b) \_\_\_\_\_

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2. Consider  $\cos 55^\circ \cos 10^\circ + \sin 55^\circ \sin 10^\circ$

(a) (2 points) Use your calculator to find its exact value.

(a) \_\_\_\_\_

(b) (2 points) Use a known formula to simplify it, and then evaluate it.

(b) \_\_\_\_\_

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3. Consider  $\frac{2 \tan 22.5^\circ}{1 - \tan^2 22.5^\circ}$

(a) (2 points) Use your calculator to find its exact value.

(a) \_\_\_\_\_

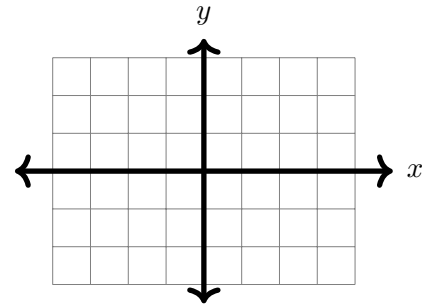
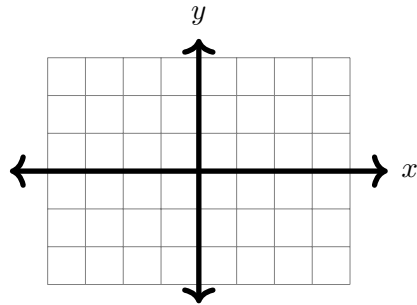
(b) (2 points) Use a known formula to simplify it, and then evaluate it.

(b) \_\_\_\_\_

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4. Given  $\sin x = \frac{3}{5}$ ,  $\cos y = -\frac{24}{25}$ ,  $x$  is in quadrant I, and  $y$  is in quadrant III.

(a) (3 points) Draw two different angles representing information above and clearly label them.



(b) (3 points) Find the exact value for  $\sin 2x$ .

(b) \_\_\_\_\_

(c) (3 points) Find the exact value for  $\sin(x + y)$ .

(c) \_\_\_\_\_

(d) (3 points) Find the exact value for  $\cos(x - y)$ .

(d) \_\_\_\_\_

(e) (3 points) Find the exact value for  $\tan(x + y)$ .

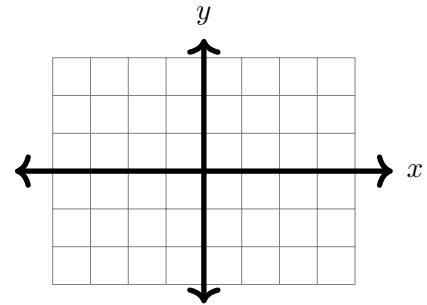
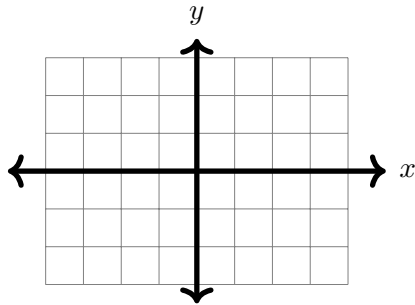
(e) \_\_\_\_\_

(f) (3 points) Find the exact value for  $\tan \frac{y}{2}$ .

(f) \_\_\_\_\_

5. Given  $\sin x = \frac{3}{7}$ ,  $\cos y = -\frac{2}{5}$ ,  $x$  is in quadrant II, and  $y$  is in quadrant III.

(a) (3 points) Draw two different angles representing information above and clearly label them.



(b) (3 points) Find the exact value for  $\sin \frac{x}{2}$ .

(b) \_\_\_\_\_

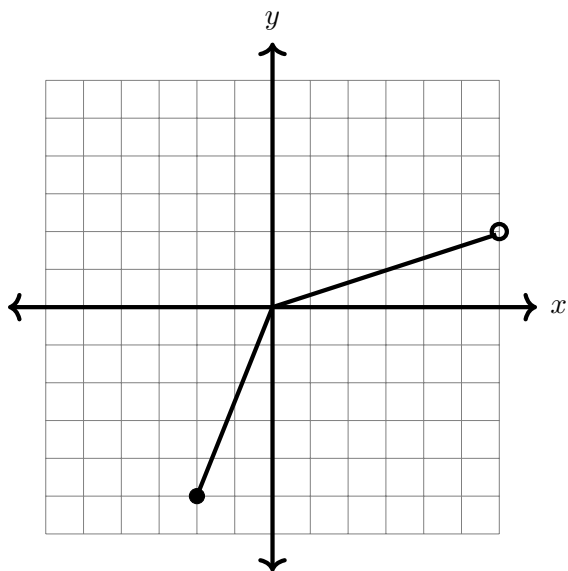
(c) (3 points) Find the exact value for  $\cos(x - y)$ .

(c) \_\_\_\_\_

(d) (3 points) Find the exact value for  $\tan(y - 45^\circ)$ .

(d) \_\_\_\_\_

6. (5 points) Consider the graph below, draw its inverse if it exists, then complete the chart below using the interval notation.



|                      | Domain | Range |
|----------------------|--------|-------|
| Given graph          |        |       |
| Inverse of the graph |        |       |

7. (3 points) Use the table below to guess the function,

|        |   |   |    |    |    |    |
|--------|---|---|----|----|----|----|
| $x$    | 1 | 2 | 3  | 4  | 5  | 6  |
| $f(x)$ | 2 | 5 | 10 | 17 | 26 | 37 |

then complete the table below and guess the inverse function.

|             |  |  |  |  |  |  |
|-------------|--|--|--|--|--|--|
| $x$         |  |  |  |  |  |  |
| $f^{-1}(x)$ |  |  |  |  |  |  |