WRITE ALL YOUR RESPONSES ON YOUR ANSWER SHEETS.
FOR THE **MULTIPLE CHOICE**, **USE ONLY CAPITAL LETTERS**.
FOR THE ITEMS INDICATED AS **SHORT ANSWER**, WRITE YOUR RESULT IN THE BLANK SPACE.
FOR THE ITEMS INDICAED AS **FREE RESPONSE**, SHOW ALL YOUR WORK NEATLY. **USE AS MANY EXTRA SHEETS AS REQUIRED**, AND *DRAW A BOX AROUND* YOUR FINAL ANSWER.

YOU MAY USE A CALCULATOR, YOUR NOTES, AND THE TEXTBOOK.

YOU MUST SUBMIT A PIC OF ALL YOUR **ANSWER SHEETS** NO LATER THAN TODAY AT 1:00pm CDT.
SEND THE PICTURES OF YOUR ANSWER SHEETS AS ATTACHMENTS IN AN EMAIL TO THE ADDRESS:
math1316_11am_spr_21@yahoo.com

I. **MULTIPLE CHOICE:** WRITE IN THE BLANK SPACE THE LETTER CORRESPONDING TO THE CORRECT RESPONSE. **PLEASE USE ONLY CAPITAL LETTERS**.

1. WHAT IS THE VALUE OF $\sin(90°)$?
   A. 0 B. 1 C. –1 D. UNDEFINED E. NONE OF THESE

2. IN WHAT QUADRANT DOES THE ANGLE $\theta = -230°$ LIE?
   A. QI B. QII C. QIII D. QIIII E. NONE OF THESE

3. WHAT IS THE VALUE OF $\sin(180°)$?
   A. 0 B. 1 C. –1 D. UNDEFINED E. NONE OF THESE

4. IN WHAT QUADRANT DOES THE ANGLE $\theta = -290°$ LIE?
   A. QI B. QII C. QIII D. QIIII E. NONE OF THESE

5. IF THE SIGNUM OF $\cot(\theta)$ IS NEGATIVE, WHAT IS THE SIGNUM OF $\sec(\theta)$?
   A. POSITIVE B. NEGATIVE C. ZERO
   D. NOT ENOUGH INFORMATION IS GIVEN E. NONE OF THESE.

6. IN WHAT QUADRANT DOES θ LIE IF THE TERMINAL SIDE OF θ PASSES THROUGH THE POINT (5, –2)?
   A. QI B. QII C. QIII D. QIIII E. NONE OF THESE

7. IN WHAT QUADRANT DOES θ LIE IF $\tan(\theta) < 0$ AND $\sec(\theta) < 0$?
   A. QI B. QII C. QIII D. QIIII E. NONE OF THESE

8. IN WHAT QUADRANT DOES θ LIE IF $\tan(\theta) < 0$ AND $\sec(\theta) > 0$?
   A. QI B. QII C. QIII D. QIIII E. NONE OF THESE

9. IN WHAT QUADRANT DOES θ LIE IF THE TERMINAL SIDE OF θ PASSES THROUGH THE POINT (7, –2)?
   A. QI B. QII C. QIII D. QIIII E. NONE OF THESE

10. IN WHAT QUADRANT DOES THE ANGLE $\theta = -275°$ LIE?
    A. QI B. QII C. QIII D. QIIII E. NONE OF THESE

11. IN WHAT QUADRANT DOES θ LIE IF $\sin(\theta) > 0$ AND $\sec(\theta) < 0$?
    A. QI B. QII C. QIII D. QIIII E. NONE OF THESE

12. WHICH OF THE FOLLOWING CONTAINS NO ERRORS?

A. $\csc(\theta) = \frac{r}{x}$ and $\tan(\theta) = \frac{y}{x}$ B. $\csc(\theta) = \frac{r}{y}$ and $\tan(\theta) = \frac{y}{x}$

C. $\sin(\theta) = \frac{r}{x}$ and $\tan(\theta) = \frac{y}{x}$ D. $\sin(\theta) = \frac{y}{r}$ and $\tan(\theta) = \frac{x}{y}$

E. NONE OF THESE

13. IF THE SIGNUM OF $\tan(\theta)$ IS POSITIVE, WHAT IS THE SIGNUM OF $\sec(\theta)$?

A. POSITIVE B. NEGATIVE C. ZERO

D. NOT ENOUGH INFORMATION IS GIVEN E. NONE OF THESE.

14. WHICH OF THE FOLLOWING CONTAINS NO ERRORS?

A. $\sin(\theta) = \frac{y}{r}$ and $\tan(\theta) = \frac{x}{y}$ B. $\sec(\theta) = \frac{r}{x}$ and $\tan(\theta) = \frac{y}{x}$

C. $\sec(\theta) = \frac{r}{y}$ and $\tan(\theta) = \frac{y}{x}$ D. $\sin(\theta) = \frac{r}{x}$ and $\tan(\theta) = \frac{y}{x}$

E. NONE OF THESE

15. WHICH OF THE FOLLOWING CONTAINS NO ERRORS?

A. $\cos(\theta) = \frac{r}{x}$ and $\tan(\theta) = \frac{y}{x}$ B. $\sin(\theta) = \frac{r}{y}$ and $\cot(\theta) = \frac{y}{x}$

C. $\sin(\theta) = \frac{r}{x}$ and $\tan(\theta) = \frac{r}{x}$ D. $\sin(\theta) = \frac{y}{r}$ and $\cot(\theta) = \frac{x}{y}$

E. NONE OF THESE

16. IF THE SIGNUM OF $\tan(\theta)$ IS NEGATIVE, WHAT IS THE SIGNUM OF $\sec(\theta)$?

A. POSITIVE B. NEGATIVE C. ZERO

D. NOT ENOUGH INFORMATION IS GIVEN E. NONE OF THESE.

17. IN WHAT QUADRANT DOES THE ANGLE $\theta = 472°$ LIE?

A. QI B. QII C. QIII D. QIIII E. NONE OF THESE

18. WHAT IS THE VALUE OF $\csc(\theta)$ IF THE TERMINAL SIDE OF θ PASSES THROUGH THE POINT (3, –5) ?

A. $\frac{\sqrt{34}}{-5}$ B. $\frac{\sqrt{34}}{3}$ C. $\frac{3}{\sqrt{34}}$

D. NOT ENOUGH INFORMATION IS GIVEN E. NONE OF THESE

19. WHAT IS THE VALUE OF $\tan(\theta)$ IF $\cos(\theta) = \frac{1}{4}$?

A. $\sqrt{15}$ B. $\frac{1}{\sqrt{15}}$ C. $-\frac{1}{\sqrt{15}}$

D. NOT ENOUGH INFORMATION IS GIVEN E. NONE OF THESE

20. WHICH OF THE FOLLOWING CONTAINS NO ERRORS?

A. $\sec(\theta) = \frac{r}{x}$ and $\tan(\theta) = \frac{y}{x}$ B. $\sec(\theta) = \frac{r}{y}$ and $\cot(\theta) = \frac{x}{y}$

C. $\sin(\theta) = \frac{r}{x}$ and $\csc(\theta) = \frac{r}{x}$ D. $\tan(\theta) = \frac{r}{y}$ and $\sec(\theta) = \frac{x}{y}$

E. NONE OF THESE

21. IF THE SIGNUM OF $\tan(\theta)$ IS NEGATIVE, WHAT IS THE SIGNUM OF $\cot(\theta)$?

A. POSITIVE B. NEGATIVE C. ZERO

D. NOT ENOUGH INFORMATION IS GIVEN E. NONE OF THESE

22. IN WHAT QUADRANT DOES THE ANGLE $\theta = 575°$ LIE?

A. QI B. QII C. QIII D. QIIII E. NONE OF THESE

23. WHAT IS THE VALUE OF $\csc(\theta)$ IF THE TERMINAL SIDE OF θ LIES ON THE LINE $5x + y = 0$ AND $x \geq 0$ IS ALSO GIVEN?

A. $\frac{\sqrt{26}}{-5}$ B. $\frac{\sqrt{26}}{1}$ C. $\frac{-5}{\sqrt{26}}$

D. NOT ENOUGH INFORMATION IS GIVEN E. NONE OF THESE

24. WHAT IS THE VALUE OF $\cos(\theta)$ IF $\tan(\theta) = -\frac{\sqrt{11}}{4}$ AND θ IS IN QIIII?

A. $-\frac{\sqrt{11}}{\sqrt{27}}$ B. $-\frac{\sqrt{11}}{\sqrt{27}}$ C. $-\frac{\sqrt{27}}{4}$

D. NOT ENOUGH INFORMATION IS GIVEN E. NONE OF THESE

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II. SHORT ANSWER. WRITE OUT YOUR RESPONSE IN THE BLANK ON THE ANSWER SHEET. FOR THIS SECTION **YOU DO NOT NEED TO SHOW YOUR WORK OR ATTACH ANY SHEETS SHOWING YOUR WORK**. SIMPLY WRITE YOUR FINAL RESULTS ON THE ANSWER SHEET.

25. IF THE TERMINAL SIDE OF θ PASSES THROUGH THE POINT $(-5, -12)$, FIND THE VALUES OF $\sin\theta)$, $\cos(\theta)$, AND $\tan(\theta)$

26. IN ΔABC, YOU ARE GIVEN $\measuredangle A = 18°$, $\measuredangle C = 90°$, AND SIDE $b = 120$. FIND THE LENGTH OF THE HYPOTENUSE. ROUND YOUR ANSWER TO THE NEAREST **WHOLE NUMBER**.

27. CHRIS IS STANDING 47 FEET FROM THE BASE OF A VERTICAL PINE TREE. AT THE TOP OF THE PINE TREE A HAWK IS PERCHED. CHRIS'S ANGLE OF ELEVATION TO THE HAWK IS $66°$. HOW HIGH IS THE HAWK ABOVE THE GROUND? ROUND YOUR ANSWER TO THE NEAREST **WHOLE NUMBER**.

28. ASSUME $x \leq 0$ AND THE TERMINAL SIDE OF θ LIES ON THE LINE $6x - y = 0$ FIND THE VALUES OF $\cot\theta)$, $\sec(\theta)$, AND $\csc(\theta)$

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III. FREE RESPONSE: FOR EACH OF THE FOLLOWING ITEMS **YOU MUST SHOW YOUR WORK** NEATLY AND COMPLETELY AS DEMONSTRATED IN THE VIDEO LESSONS. YOU **DO NOT NEED TO SIMPLIFY** YOUR FINAL RESULTS IN ANY WAY, HOWEVER, ROUND YOUR ANSWERS AS INDICATED, AND $\boxed{\textit{DRAW A BOX AROUND}}$ YOUR FINAL ANSWER.

USE AS MANY EXTRA SHEETS AS NEEDED. YOUR WORK MUST BE NEAT, READABLE, AND USE ONLY METHODS DISCUSSED ON THE VIDEO LESSONS.

IF YOU DO NOT SHOW ALL YOUR WORK IN A NEAT AND ORDERLY FASHION, OR IF YOU USE METHODS OTHER THAN THOSE DISCUSSED ON THE VIDEO LESSONS, OR IF YOU DO NOT FOLLOW DIRECTIONS, YOU FORFEIT YOUR CLAIM TO ANY CREDIT.

29. SOLVE THE TRIANGLE USING THE GIVEN INFORMATION. ROUND ALL **LENGTHS** TO **TWO** DECIMAL PLACES.

GIVEN: $\measuredangle A = 54°$, $\measuredangle C = 90°$, AND SIDE $c = 65$.

30. SOLVE THE TRIANGLE USING THE GIVEN INFORMATION. ROUND ALL **LENGTHS** TO **TWO** DECIMAL PLACES.

GIVEN: $\measuredangle A = 22°$, $\measuredangle C = 90°$, AND SIDE $b = 33$.

31. SEE THE PICTURE. POINT J LIES 225 METERS DIRECTLY ABOVE A SHED LOCATED AT POINT S. A HELICOPTER LOCATED AT POINT H_1 HAS AN ANGLE OF DEPRESSION TO THE SHED OF $27°$. AFTER FLYING TO POINT H_2 WHICH IS CLOSER TO POINT J, THE ANGLE OF DEPRESSION TO THE SHED IS $42°$. USING THIS INFORMATION, **WHAT IS THE DISTANCE** BETWEEN POINTS H_1 AND H_2? ROUND YOUR ANSWER TO **ONE DECIMAL PLACE**.