

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 $\sin(270^\circ)$?
A. 0 B. 1 C. -1 D. UNDEFINED E. NONE OF THESE
2. _____ IN WHAT QUADRANT DOES THE ANGLE $\theta = -170^\circ$ LIE?
A. QI B. QII C. QIII D. QIV E. NONE OF THESE
3. _____ IN WHAT QUADRANT DOES θ LIE IF $\tan(\theta) > 0$ AND $\sec(\theta) < 0$?
A. QI B. QII C. QIII D. QIV E. NONE OF THESE
4. _____ 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. QIV E. NONE OF THESE
5. _____ IN WHAT QUADRANT DOES THE ANGLE $\theta = -120^\circ$ LIE?
A. QI B. QII C. QIII D. QIV E. NONE OF THESE
6. _____ IF THE SIGNUM OF $\sin(\theta)$ 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.
7. _____ 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 $\tan(\theta) = \frac{y}{x}$
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
8. _____ WHICH OF THE FOLLOWING CONTAINS NO ERRORS?
A. $\cos(\theta) = \frac{r}{x}$ and $\tan(\theta) = \frac{y}{x}$ B. $\csc(\theta) = \frac{r}{y}$ and $\cot(\theta) = \frac{x}{y}$
C. $\sin(\theta) = \frac{r}{x}$ and $\tan(\theta) = \frac{r}{x}$ D. $\sin(\theta) = \frac{r}{y}$ and $\cot(\theta) = \frac{x}{y}$
E. NONE OF THESE
9. _____ 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.
10. _____ IN WHAT QUADRANT DOES THE ANGLE $\theta = 472^\circ$ LIE?
A. QI B. QII C. QIII D. QIV E. NONE OF THESE
11. _____ 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
12. _____ WHAT IS THE VALUE OF $\cos(\theta)$ IF $\sin(\theta) = \frac{1}{4}$ AND θ IS IN QII?
A. $\sqrt{17}$ B. $\frac{1}{\sqrt{17}}$ C. $-\frac{1}{\sqrt{17}}$ D. NOT ENOUGH INFORMATION IS GIVEN E. NONE OF THESE

II. USE THE GIVEN INFORMATION ABOUT THE ANGLE θ TO **FIND THE VALUES** OF ALL SIX TRIGONOMETRIC FUNCTIONS. LEAVE ALL YOUR ANSWERS AS **EXACT VALUES**!

13. THE TERMINAL SIDE OF θ PASSES THROUGH THE POINT $(-4, -3)$.

14. θ IS IN QIII AND $\tan(\theta) = \frac{\sqrt{3}}{5}$ 15. $\theta = 450^\circ$

16. THE TERMINAL SIDE OF θ PASSES THROUGH THE POINT $(8, -4)$.

17. θ IS IN QII AND $\sec(\theta) = -\frac{7}{5}$.

III. AS DEMONSTRATED IN CLASS, USE THE x, y, r DEFINITIONS OF THE TRIGONOMETRIC FUNCTIONS TO **VERIFY EACH IDENTITY**.

19. $\tan(\theta) = \frac{\sec(\theta)}{\csc(\theta)}$

III. SOLVE EACH TRIANGLE:

20. GIVEN: $A = 33^\circ$ $C = 90^\circ$ $c = 45$ cm.

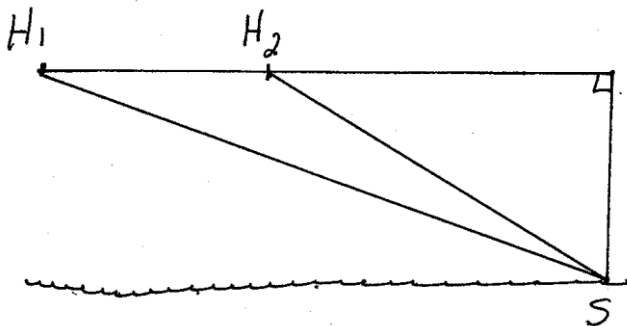
21. GIVEN: $B = 77^\circ$ $C = 90^\circ$ $b = 25$ cm.

V. SOLVE EACH EQUATION FOR θ IN THE INTERVAL $[0, 360^\circ)$

22. $\sin(\theta) = -\frac{1}{2}$ 23. $\cos(\theta) = -\frac{1}{\sqrt{2}}$ 24. $\tan(\theta) = 1$ 25. $\sec(\theta) = -1$

VI. SOLVE EACH PROBLEM. PICTURES ARE PROVIDED.

26. FROM POINT H_1 , THE ANGLE OF DEPRESSION FROM A SEARCH PLANE TO A SWIMMER IS 16° . AFTER FLYING HORIZONTALLY 120 METERS CLOSER TO POINT H_2 , THE ANGLE OF DEPRESSION IS 38° . IF THE HELICOPTER IS 70 METERS ABOVE THE WATER'S SURFACE, FIND THE DISTANCE BETWEEN THE POINTS H_1 AND S .



VII. YOU SHOULD BE ABLE TO DRAW THE THREE BASIC PICTURES WE HAVE USED:

THE $30-60-90$ TRIANGLE, THE $45-45-90$ TRIANGLE, AND THE UNIT CIRCLE WITH THE INTERCEPTS.