Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Pd: \_\_\_\_\_\_\_\_

**Unit A Exam**

Neatly solve the following problems. Make your answers clear by putting a box around the final answer. Partial credit will be awarded for work that is shown. Failure to follow directions and complete problems will result in deductions of points. (100)

1. For an angle measuring 43°, find the measure of its (a) complement and (b) supplement. (2)

2. Find the value of x and determine the measure of each angle. (3)

6x - 18

4x + 8

3. Perform each calculation. (4)

 (a) 15°21’09” + 25°18’20” (b) 50° - 27°24’50”

4. Convert to either Degrees, Minutes, Seconds or Decimal Degrees. (4)

 (a) 44.625° (b) 30°40’35”

5. Find the least possible positive conterminal angel. (4)

 (a) 1838° (b) -510°

6. Vinyl records at 180 revolutions per minute. Through how many degrees will a point on the edge of a CD move in two seconds? (4)

|  |
| --- |
| Sin *θ =* |
| Cos *θ =* |
| Tan *θ =* |
| Cot *θ =* |
| Sec *θ =* |
| Csc *θ =* |

7. The terminal side of angle *θ* in standard position passes through the point (5, 13). Find the values of the six trigonometric functions of angle θ. (8)

8. Find cos θ given sin θ = $-\frac{7}{25}$. 9. Determine if the equations are possible or impossible. (3)
θ is in quadrant III. (5) (a) cos θ = -0.9 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 (b) tan θ = 25 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 (c) csc θ = -0.5 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 10. In which quadrant are the statements true? (3)

 (a) csc θ < 0, sec θ < 0 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 (b) tan θ > 0, csc θ > 0 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(c) sin θ > 0, cot θ > 0 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

11. Solve for sin B, cos, B and tan B. (6)

10

14

A

12. Write each function in terms of its cofunction. (4)

B

 a. cos 68° = b. csc (θ + 40)° =

13. Draw a right triangle with a 45° angle. Find the degree of the missing angle. Also, find the sin, cosine and tangent ratios of the angle (excluding the 90° angle). (9)

14. Draw and find the reference angle for each of the following. (4)

 a. 267° b. -340°

|  |
| --- |
| Sin *θ =* |
| Cos *θ =* |
| Tan *θ =* |
| Cot *θ =* |
| Sec *θ =* |
| Csc *θ =* |

15. Draw and find the reference angle.
Find the six trigonometric function values for 120°. (8)

16. Use your calculator to find the approximate value of each expression or equation. (4)

 a. sin 99.773° b. cot 50.13°

 c. cos θ = 0.25 d. sec θ = 2.46

17. Calculate F to the nearest 10 pounds for a 5000-lb car traveling an uphill grade with θ = 6.2°. (3)
 F = w sinθ (w = weight in pounds)

18. Solve right triangle ABC, if A = 18°30′ and c = 14.2 in. (5)

19. Solve **right** triangle ABC, if a = 20.6 cm and c = 50.6 cm, given angle C is the right angle. (5)

20. The length of the shadow of a house that is 50 m tall is 53.02m long. Find the angle of elevation of the sun. (4)

21. Draw each of the bearings. (4)

a. 290° b. 130° c. N 40° W d. S 65° E