Trigonometric Functions MCQs for Entry Test - Exercise 12.1

Introduction

This document contains 20 multiple-choice questions based on Exercise 12.1 of the Application of Trigonometry chapter, designed for entry test preparation. Each question tests the evaluation of trigonometric functions (sin, cos, tan, cot) for angles in degrees and minutes or finding angles using inverse trigonometric functions. Solutions with detailed explanations are provided at the end. Note: Values are approximated to four decimal places where applicable, and angles are in degrees and minutes.

Multiple-Choice Questions

1. **What is the value of** $\sin 53°40'$**?**

   A) 0.8056

   B) 0.5984

   C) 0.7312

   D) 0.9123

2. **What is the value of** $\cos 36°20'$**?**

   A) 0.9123

   B) 0.8056

   C) 0.6734

   D) 0.5287

3. **What is the value of** $\tan 19°30'$**?**

   A) 0.4583

   B) 0.3541

   C) 0.2876

   D) 0.5234

4. **What is the value of** $\cot 33°50'$**?**

   A) 1.4919

   B) 0.6734

C) 2.1234

D) 1.9876

5. **What is the value of** $\cos 42°38'$**?**

A) 0.9123

B) 0.5984

C) 0.7357

D) 0.4678

6. **What is the value of** $\tan 25°34'$**?**

A) 0.4784

B) 0.3541

C) 0.6127

D) 0.8056

7. **What is the value of** $\sin 18°31'$**?**

A) 0.4678

B) 0.3176

C) 0.5984

D) 0.7357

8. **What is the value of** $\cos 52°13'$**?**

A) 0.6127

B) 0.8056

C) 0.3541

D) 0.4784

9. **What is the value of** $\cot 89°9'$**?**

A) 0.01483

B) 0.4678

C) 0.9876

D) 1.2345

10. **What is** θ **if** $\sin\theta = 0.5791$**?**

A) $35°23'$

B) $45°12'$

C) $28°45'$

D) $60°30'$

11. **What is** θ **if** $\cos\theta = 0.9316$**?**

A) $30°15'$

B) $21°18'$

C) $45°23'$

D) $15°50'$

12. **What is θ if $\cos\theta = 0.5257$?**

A) $58°17'$

B) $35°23'$

C) $45°12'$

D) $60°30'$

13. **What is θ if $\tan\theta = 1.705$?**

A) $30°15'$

B) $59°36'$

C) $45°23'$

D) $87°23'$

14. **What is θ if $\tan\theta = 21.943$?**

A) $59°36'$

B) $45°12'$

C) $87°23'$

D) $30°15'$

15. **What is θ if $\sin\theta = 0.5186$?**

A) $45°23'$

B) $31°14'$

C) $60°30'$

D) $28°45'$

16. **What is the value of $\sin 47°25'$?**

A) 0.7357

B) 0.6127

C) 0.8056

D) 0.4678

17. **What is the value of $\tan 72°15'$?**

A) 3.1245

B) 0.4784

C) 1.7050

D) 0.3541

18. **What is the value of** $\cot 15°45'$**?**

    A) 0.2876

    B) 3.4872

    C) 1.4919

    D) 0.01483

19. **What is** θ **if** $\cos\theta = 0.7071$**?**

    A) $30°0'$

    B) $45°0'$

    C) $60°0'$

    D) $90°0'$

20. **What is** θ **if** $\tan\theta = 0.5774$**?**

    A) $30°0'$

    B) $45°0'$

    C) $60°0'$

    D) $29°45'$

Solutions and Explanations

1. **Solution to Question 1:**

   $$\sin 53°40' = 0.8056 \text{ (from trigonometric tables or calculator).}$$

   Answer: A) 0.8056

2. **Solution to Question 2:**

   $$\cos 36°20' = 0.8056 \text{ (from trigonometric tables or calculator).}$$

   Answer: B) 0.8056

3. **Solution to Question 3:**

   $$\tan 19°30' = 0.3541 \text{ (from trigonometric tables or calculator).}$$

   Answer: B) 0.3541

4. **Solution to Question 4:**

   $$\cot 33°50' = \frac{1}{\tan 33°50'} = 1.4919 \text{ (from trigonometric tables or calculator).}$$

   Answer: A) 1.4919

5. **Solution to Question 5:**

$$\cos 42°38' = 0.7357 \text{ (from trigonometric tables or calculator).}$$

Answer: C) 0.7357

6. **Solution to Question 6:**

$$\tan 25°34' = 0.4784 \text{ (from trigonometric tables or calculator).}$$

Answer: A) 0.4784

7. **Solution to Question 7:**

$$\sin 18°31' = 0.3176 \text{ (from trigonometric tables or calculator).}$$

Answer: B) 0.3176

8. **Solution to Question 8:**

$$\cos 52°13' = 0.6127 \text{ (from trigonometric tables or calculator).}$$

Answer: A) 0.6127

9. **Solution to Question 9:**

$$\cot 89°9' = \frac{1}{\tan 89°9'} = 0.01483 \text{ (from trigonometric tables or calculator).}$$

Answer: A) 0.01483

10. **Solution to Question 10:**

$$\sin\theta = 0.5791 \implies \theta = \sin^{-1}(0.5791) = 35°23' \text{ (from tables or calculator).}$$

Answer: A) $35°23'$

11. **Solution to Question 11:**

$$\cos\theta = 0.9316 \implies \theta = \cos^{-1}(0.9316) = 21°18' \text{ (from tables or calculator).}$$

Answer: B) $21°18'$

12. **Solution to Question 12:**

$$\cos\theta = 0.5257 \implies \theta = \cos^{-1}(0.5257) = 58°17' \text{ (from tables or calculator).}$$

Answer: A) $58°17'$

13. **Solution to Question 13:**

$$\tan\theta = 1.705 \implies \theta = \tan^{-1}(1.705) = 59°36' \text{ (from tables or calculator).}$$

Answer: B) $59°36'$

14. **Solution to Question 14:**

$$\tan\theta = 21.943 \implies \theta = \tan^{-1}(21.943) = 87°23' \text{ (from tables or calculator).}$$

Answer: C) $87°23'$

15. **Solution to Question 15:**

$$\sin\theta = 0.5186 \implies \theta = \sin^{-1}(0.5186) = 31°14' \text{ (from tables or calculator).}$$

Answer: B) $31°14'$

16. **Solution to Question 16:**

$$\sin 47°25' \approx 0.7357 \text{ (from trigonometric tables or calculator).}$$

Answer: A) 0.7357

17. **Solution to Question 17:**

$$\tan 72°15' \approx 3.1245 \text{ (from trigonometric tables or calculator).}$$

Answer: A) 3.1245

18. **Solution to Question 18:**

$$\cot 15°45' = \frac{1}{\tan 15°45'} \approx 3.4872 \text{ (from trigonometric tables or calculator).}$$

Answer: B) 3.4872

19. **Solution to Question 19:**

$$\cos\theta = 0.7071 \approx \frac{\sqrt{2}}{2} \implies \theta = \cos^{-1}(0.7071) = 45°0' \text{ (standard value).}$$

Answer: B) $45°0'$

20. **Solution to Question 20:**

$$\tan\theta = 0.5774 \approx \frac{\sqrt{3}}{3} \implies \theta = \tan^{-1}(0.5774) = 30°0' \text{ (standard value).}$$

Answer: A) $30°0'$