

Your exam is identical in format to this review. Only the actual numerical values of the questions will vary. The MC is 60 points and the FR is 40 points.

As a reminder, you must have the UNIT CIRCLE MEMORIZED for this exam. You will not be given a unit circle and you will not be permitted to use one.

**Multiple-Choice Section:** Each problem is worth 2 points. (60 points total)—See PDF file with 30 MC questions.

**Free-Response Section:** In this section, you must show all work in order to receive full credit. Solve the word problem. Draw and label a diagram that models this situation. Be sure to include units in your final answer. Round or truncate your final answer to the thousandths place.

|    |  |
|----|--|
| 31 | Mr. Leed is trying to determine the height of a spire that is on top of the a building. He stands 100ft away from the building. When he looks up, his angle of elevation to the base of the antenna is $50^\circ$ and his angle of elevation to the top of the antenna is $59^\circ$ . How tall is the spire? (8 points) |
|----|--|



This review is identical in format to your Ch.4A Exam. Only the actual numerical values of the questions will vary.

**MULTIPLE CHOICE.** Choose the one alternative that best completes the statement or answers the question.

**Convert from degrees to radians. Use the value of  $\pi$  found on a calculator and round answers to four decimal places, as needed.**

1)  $60^\circ$  1) \_\_\_\_\_

- A)  $\frac{\pi}{4}$                       B)  $\frac{\pi}{5}$                       C)  $\frac{\pi}{2}$                       D)  $\frac{\pi}{3}$

2)  $216^\circ$  2) \_\_\_\_\_

- A)  $\frac{3\pi}{5}$                       B)  $\frac{7\pi}{10}$                       C)  $\frac{6\pi}{5}$                       D)  $\frac{12\pi}{5}$

3)  $-270^\circ$  3) \_\_\_\_\_

- A)  $\frac{3\pi}{2}$                       B)  $-3\pi$                       C)  $-\frac{3\pi}{4}$                       D)  $-\frac{3\pi}{2}$

4)  $58.55^\circ$  4) \_\_\_\_\_

- A) 0.3253                      B) 1.0219                      C) 0.6813                      D) 0.5109

**Convert the radian measure to degree measure. Use the value of  $\pi$  found on a calculator and round answers to two decimal places.**

5)  $-\pi/4$  5) \_\_\_\_\_

- A)  $-45^\circ$                       B)  $-45\pi^\circ$                       C)  $-0.79^\circ$                       D)  $-(\pi/4)^\circ$

6)  $\frac{31}{9}\pi$  6) \_\_\_\_\_

- A)  $620^\circ$                       B)  $10.82^\circ$                       C)  $310^\circ$                       D)  $1240\pi^\circ$

7) 3.2071 7) \_\_\_\_\_

- A)  $183.05^\circ$                       B)  $183.75^\circ$                       C)  $184.25^\circ$                       D)  $184.75^\circ$

**Assume that  $\theta$  is an acute angle in a right triangle satisfying the given conditions. Evaluate the indicated trigonometric function.**

8)  $\sin \theta = \frac{8}{9}$ ;  $\cot \theta$  8) \_\_\_\_\_

- A)  $\frac{\sqrt{17}}{8}$                       B)  $\frac{\sqrt{17}}{9}$                       C)  $\frac{9}{\sqrt{17}}$                       D)  $\frac{8}{\sqrt{17}}$

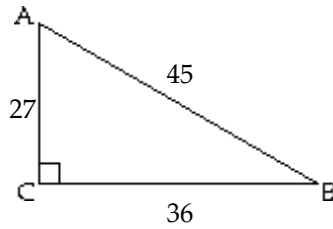
9)  $\cos \theta = \frac{9}{10}$ ;  $\tan \theta$  9) \_\_\_\_\_

- A)  $\frac{\sqrt{19}}{10}$                       B)  $\frac{\sqrt{19}}{9}$                       C)  $\frac{10}{9}$                       D)  $\frac{9}{\sqrt{19}}$

Find the exact values of the indicated trigonometric functions. Write fractions in lowest terms.

10)

10) \_\_\_\_\_



Find  $\sin A$  and  $\cos A$ .

A)  $\sin A = \frac{4}{3}$ ;  $\cos A = \frac{3}{4}$

B)  $\sin A = \frac{3}{5}$ ;  $\cos A = \frac{4}{5}$

C)  $\sin A = \frac{5}{4}$ ;  $\cos A = \frac{5}{3}$

D)  $\sin A = \frac{4}{5}$ ;  $\cos A = \frac{3}{5}$

Give the exact value.

11)  $\cot \frac{\pi}{6}$

11) \_\_\_\_\_

A)  $\frac{\sqrt{3}}{2}$

B)  $\sqrt{3}$

C)  $\frac{\sqrt{3}}{3}$

D) 1

12)  $\tan \frac{\pi}{3}$

12) \_\_\_\_\_

A) 2

B)  $\frac{\sqrt{3}}{3}$

C)  $\frac{\sqrt{3}}{2}$

D)  $\sqrt{3}$

13)  $\tan \frac{\pi}{4}$

13) \_\_\_\_\_

A)  $\frac{\sqrt{3}}{2}$

B)  $\frac{\sqrt{2}}{2}$

C)  $\sqrt{2}$

D) 1

14)  $\tan 45^\circ$

14) \_\_\_\_\_

A)  $\sqrt{2}$

B) 1

C)  $\frac{\sqrt{2}}{2}$

D)  $\frac{\sqrt{3}}{2}$

15)  $\sec 60^\circ$

15) \_\_\_\_\_

A)  $\frac{\sqrt{3}}{2}$

B) 2

C)  $\frac{2\sqrt{3}}{3}$

D)  $\sqrt{2}$

16)  $\tan 30^\circ$

16) \_\_\_\_\_

A) 1

B)  $\frac{\sqrt{3}}{2}$

C)  $\frac{\sqrt{3}}{3}$

D)  $\sqrt{3}$

**Solve the equation.**

17) Solve  $\sin \theta = \frac{1}{2}$  for  $\theta$ , where  $0^\circ \leq \theta \leq 90^\circ$ .

A)  $60^\circ$

B)  $30^\circ$

C)  $45^\circ$

D)  $90^\circ$

17) \_\_\_\_\_

18) Solve  $\cos \theta = 1$  for  $\theta$ , where  $0^\circ \leq \theta \leq 90^\circ$ .

A)  $0^\circ$

B)  $60^\circ$

C)  $90^\circ$

D)  $30^\circ$

18) \_\_\_\_\_

19) Solve  $\tan \theta = \sqrt{3}$  for  $\theta$ , where  $0^\circ \leq \theta \leq 90^\circ$ .

A)  $45^\circ$

B)  $30^\circ$

C)  $60^\circ$

D)  $90^\circ$

19) \_\_\_\_\_

20) Solve  $\sin \theta = \frac{\sqrt{3}}{2}$  for  $\theta$ , where  $0 \leq \theta \leq \frac{\pi}{2}$ .

A)  $\frac{\pi}{3}$

B)  $\frac{\pi}{4}$

C)  $\frac{\pi}{6}$

D)  $\frac{\pi}{2}$

20) \_\_\_\_\_

21) Solve  $\tan \theta = \frac{1}{\sqrt{3}}$  for  $\theta$ , where  $0 \leq \theta \leq \frac{\pi}{2}$ .

A)  $\frac{\pi}{6}$

B)  $\frac{\pi}{4}$

C)  $\frac{\pi}{2}$

D)  $\frac{\pi}{3}$

21) \_\_\_\_\_

22) Solve  $\sec \theta = \sqrt{2}$  for  $\theta$ , where  $0^\circ \leq \theta \leq 90^\circ$ .

A)  $90^\circ$

B)  $60^\circ$

C)  $30^\circ$

D)  $45^\circ$

22) \_\_\_\_\_

23) Solve  $\cot \theta = \sqrt{3}$  for  $\theta$ , where  $0^\circ \leq \theta \leq 90^\circ$ .

A)  $60^\circ$

B)  $75^\circ$

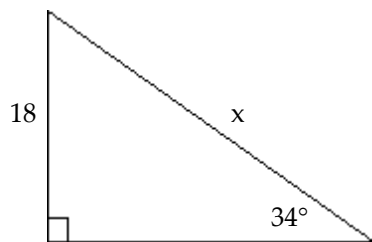
C)  $45^\circ$

D)  $30^\circ$

23) \_\_\_\_\_

**Solve for x. Round your answer to 2 decimal places.**

24)



A) 14.92

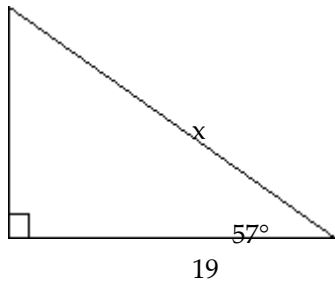
B) 32.19

C) 21.71

D) 10.07

24) \_\_\_\_\_

25)



25) \_\_\_\_\_

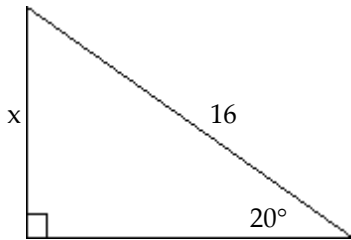
A) 34.89

B) 10.35

C) 15.93

D) 22.65

26)



26) \_\_\_\_\_

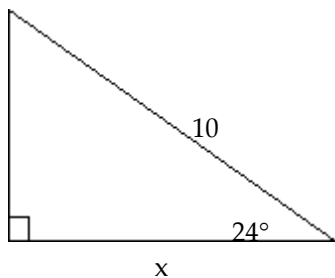
A) 5.47

B) 15.04

C) 46.78

D) 5.82

27)



27) \_\_\_\_\_

A) 10.95

B) 4.45

C) 9.14

D) 4.07

**Solve the problem.**

28) A kite is currently flying at an altitude of 20 meters above the ground. If the angle of elevation from the ground to the kite is  $34^\circ$ , find the length of the kite string to the nearest meter.

28) \_\_\_\_\_

A) 36 meters

B) 11 meters

C) 30 meters

D) 24 meters

29) From a distance of 43 feet from the base of a building, the angle of elevation to the top of the building is  $66^\circ$ . Estimate the height of the building to the nearest foot.

29) \_\_\_\_\_

A) 39 feet

B) 97 feet

C) 19 feet

D) 17 feet

30) A school building has a height of 42 feet. Its shadow is currently 11.3 feet long, and the shadow of the church next door is 19.8 feet long. Use similar triangles to calculate the height of the church to the nearest tenth of a foot.

30) \_\_\_\_\_

A) 73.6 feet

B) 24.0 feet

C) 9397.1 feet

D) 53.3 feet

## Answer Key

Testname: SPC\_CH4AREVIEW

- 1) D
- 2) C
- 3) D
- 4) B
- 5) A
- 6) A
- 7) B
- 8) A
- 9) B
- 10) D
- 11) B
- 12) D
- 13) D
- 14) B
- 15) B
- 16) C
- 17) B
- 18) A
- 19) C
- 20) A
- 21) A
- 22) D
- 23) D
- 24) B
- 25) A
- 26) A
- 27) C
- 28) A
- 29) B
- 30) A