

**QUALITY CONTROL/QUALITY ASSURANCE OF CONCRETE  
MATHEMATICS STUDY QUIZ**

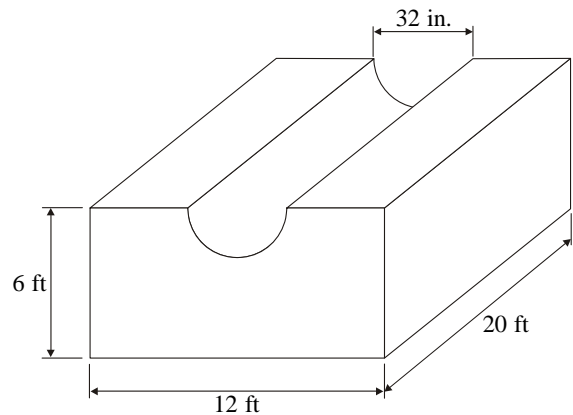
This precertification examination is intended to ensure that all participants have the requisite mathematics skills to successfully complete the SCDOT Certification review modules and the SCDOT and ACI Certification examinations. This study quiz examination is based on the SCDOT Mathematics Certification Test.

**INSTRUCTIONS**

This examination is to be completed *individually*, without the help of others or outside references. Calculators are permitted.

**Question #1:** For the figure shown on the right, what is the volume of the solid, in cubic feet, if the cutout area forms a half circle of diameter 32 inches?

- A. 1157 ft<sup>3</sup>
- B. 1328 ft<sup>3</sup>
- C. 1384 ft<sup>3</sup>
- D. 1496 ft<sup>3</sup>



**Question #2:** What is the same volume in cubic yards?

- A. 16.4 yd<sup>3</sup>
- B. 51.3 yd<sup>3</sup>
- C. 147.6 yd<sup>3</sup>
- D. 153.8 yd<sup>3</sup>

**Question #3:** 350 tons of material will cover a strip 15 feet wide and one mile long. What is the area, in square yards of this strip?

- A. 5 867 yd<sup>2</sup>
- B. 8 800 yd<sup>2</sup>
- C. 17 040 yd<sup>2</sup>
- D. 26 400 yd<sup>2</sup>

**Question #4:** 350 tons of material will cover a strip 15 feet wide and one mile long. How many pounds of material per square yard does this represent?

- A. 144 lbs
- B. 79.5 lbs
- C. 119 lbs
- D. 788 lbs

**Question #5:** 350 tons of material will cover a strip 15 feet wide and one mile long. If the material weighs 106 pounds per cubic foot, how thick is the strip of material?

- A. 0.083 ft
- B. 1.3 in.
- C. 0.5 ft
- D. 4 in.

**Question #6:** If material costs \$2.80 per square foot, how much does it cost per square yard?

- A. \$25.20
- B. \$16.20
- C. \$0.31
- D. \$8.40

**Question #7:** You are required to mix three components, A, B and C in the ratio A:B:C = 1:2:3. Each component has the following masses:

Component A weighs 180 pounds per cubic foot  
Component B weighs 150 pounds per cubic foot  
Component C weighs 120 pounds per cubic foot

What is the weight of one cubic yard of the mixed material?

- A. 4050 lbs
- B. 3780 lbs
- C. 840 lbs
- D. 1210 lbs

**Question #8:** For the same product mixed in Question #7, What volume of component B is required to mix one cubic yard of the mixed material?

- A. 1 ft<sup>3</sup>
- B. 3 ft<sup>3</sup>
- C. 9 ft<sup>3</sup>
- D. 27 ft<sup>3</sup>

**Question #9:** A tapered section of pipe 20 feet long starts at a diameter of 16 feet and decreases to 10 feet. What is the average diameter of the pipe?

- A. 12 ft.
- B. 13 ft
- C. 14.5 ft
- D. 18 ft

**Question #10:** Add  $\frac{1}{8} + \frac{3}{16} + \frac{1}{2} =$

- A.  $\frac{7}{8}$
- B.  $\frac{13}{16}$
- C.  $\frac{9}{16}$
- D.  $\frac{3}{32}$

**Quality Control / Quality Assurance of Concrete  
Mathematics Study Quiz**

This quiz is intended to ensure that all participants have the required mathematics skills to successfully complete the SCDOT certification review modules and the SCDOT and ACI certification examinations. This quiz is based on the SCDOT Mathematics Certification Test.

The answers below are provided for you to check your work against the correct answers to the quiz.

***CORRECT ANSWER KEY:***

<i>Question</i>	<i>Response</i>
<b>1</b>	<b>C. 1384 ft<sup>3</sup></b>
<b>2</b>	<b>B. 51.3 ft<sup>3</sup></b>
<b>3</b>	<b>B. 8,800 yd<sup>2</sup></b>
<b>4</b>	<b>B. 79.5 lbs.</b>
<b>5</b>	<b>A. 0.083 ft</b>
<b>6</b>	<b>A. \$25.20</b>
<b>7</b>	<b>B. 3780 lbs.</b>
<b>8</b>	<b>C. 9 ft<sup>3</sup></b>
<b>9</b>	<b>B. 13 ft</b>
<b>10</b>	<b>B. 13/16</b>