

1. The following 2 diameters were measured at right angles to each other at about midheight of the specimen. Can the cylinder be tested?

Diameter 1: 6.02 inches

Diameter 2: 6.04 inches

2. The following 2 diameters were measured at right angles to each other at about midheight of the specimen. Can the cylinder be tested?

Diameter 1: 4.03 inches

Diameter 2: 3.94 inches

3. The following 2 diameters were measured at right angles to each other at about midheight of the specimen. Can the cylinder be tested?

Diameter 1: 3.98 inches

Diameter 2: 4.03 inches

4. A cylinder with an average diameter of 6.02 inches was tested. The maximum load was 134,670 lbs. Determine the reported compressive strength.

5. A cylinder was tested according to ASTM C39. Using the information below, report the compressive strength of the cylinder.

Diameter 1: 4.01 inches

Maximum Load: 72,340 lbs

Diameter 2: 4.03 inches

6. A cylinder was tested according to ASTM C39. Using the information below, report the compressive strength of the cylinder.

Diameter 1: 6.00 inches

Maximum Load: 156,470 lbs

Diameter 2: 6.02 inches

7. A cylinder has a length of 6 inches and a diameter of 4 inches. The compressive strength was 4,336 psi. What is the **reported** Compressive Strength?

8. A beam is tested by ASTM C78. The load is applied at a rate that constantly increases the maximum stress on the tension face at 160 psi/min. What is the loading rate in lb/min?

Span length = 18.0 inches

Specimen Width: 6.00 inches

Specimen Depth: 6.00 inches

9. A beam is tested by ASTM C78. The load is applied at a rate that constantly increases the maximum stress on the tension face at 140 psi/min. What is the loading rate in lb/min?

Span length = 18.0 inches

Specimen Width: 6.00 inches

Specimen Depth: 6.00 inches

10. A beam fractures in the compression machine. The maximum applied load was 9,250 lbs. What is the modulus of rupture?

Span length = 18.0 inches

Average Distance of Fracture from Nearest Support: 8.4 inches

Specimen Width: 6.05 inches

Specimen Depth: 6.00 inches

11. A beam fractures in the compression machine. The maximum applied load was 8,350 lbs. What is the modulus of rupture?

Span length = 18.0 inches

Average Distance of Fracture from Nearest Support: 9.4 inches

Specimen Width: 5.95 inches

Specimen Depth: 6.00 inches

12. A beam fractures in the compression machine. The maximum applied load was 7,830 lbs. What is the modulus of rupture?

Span length = 18.0 inches

Average Distance of Fracture from Nearest Support: 5.3 inches

Specimen Width: 6.00 inches

Specimen Depth: 6.05 inches

13. A beam fractures in the compression machine. The maximum applied load was 8,460 lbs. What is the modulus of rupture?

Span length = 18.0 inches

Average Distance of Fracture from Nearest Support: 5.7 inches

Specimen Width: 6.00 inches

Specimen Depth: 5.95 inches

### Answer Sheet

1. Yes (within 2%)
2. No (not within 2%)
3. Yes (within 2%)
4. Compressive Strength = 4,730 psi
5. Compressive Strength = 5,700 psi
6. Compressive Strength = 5,520 psi
7. Correction factor = 0.96  
Reported Compressive Strength = 4,160 psi
8.  $r = 1,920$  lb/min
9.  $r = 1,680$  lb/min
10.  $R = 765$  psi
11.  $R = 700$  psi
12.  $R = 565$  psi
13.  $R = 680$  psi