Below are the formulas you may find useful as you work the problems. However, some of the formulas may not be used. You may refer to this page as you take the test.

**Area**
- Rectangle/Parallelogram \( A = bh \)
- Triangle \( A = \frac{1}{2} bh \)
- Circle \( A = \pi r^2 \)
- Trapezoid \( A = \frac{1}{2} (h)(b_1 + b_2) \)

**Circumference**
\( C = \pi d \quad \pi = 3.14 \)

**Volume**
- Rectangular Prism/Cylinder \( V = Bh \)
- Pyramid/Cone \( V = \frac{1}{3} Bh \)
- Sphere \( V = \frac{4}{3} \pi r^3 \)

**Surface Area**
- Rectangular Prism \( SA = 2lw + 2wh + 2lh \)
- Cylinder \( SA = 2\pi r^2 + 2\pi rh \)
- Sphere \( SA = 4\pi r^2 \)

**Pythagorean Theorem**
\( a^2 + b^2 = c^2 \)

**Quadratic Formula**
\( x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \)

Standard Form \( ax^2 + bx + c = y \)

Vertex Form \( a(x - h)^2 + k = y \)

**Expected Value**
\( E(x) = \sum_{i=1}^{n} x_ip(x_i) \)
the sum of each outcome multiplied by its probability of occurrence

**Permutations**
\( nP_r = \frac{n!}{(n-r)!} \)

**Combinations**
\( _nC_r = \frac{n!}{r!(n-r)!} \)

**Interquartile Range**
the difference between the first quartile and third quartile of a set of data

**Trigonometric Relationships**
\( \sin(\theta) = \frac{\text{opp}}{\text{hyp}} \); \( \cos(\theta) = \frac{\text{adj}}{\text{hyp}} \); \( \tan(\theta) = \frac{\text{opp}}{\text{adj}} \)

**Special Right Triangles**

**45° – 45° – 90° Triangle**
- \( x \sqrt{2} \)
- \( 45^\circ \)

**30° – 60° – 90° Triangle**
- \( 2x \)
- \( 30^\circ \)

STOP.