1. **Real Numbers:**
   a. Express $\sqrt{20}$ in the form $a\sqrt{b}$, where a and b are integers.
   b. Prove that $\sqrt{2}$ is irrational.

2. **Polynomials:**
   a. Factorize the quadratic expression $x^2 - 5x + 6$.
   b. Find the remainder when $3x^3 - 2x^2 + 4x - 1$ is divided by $x - 2$.

3. **Pair of Linear Equations in Two Variables:**
   a. Solve the system of equations:
   $$
   \begin{align*}
   2x - y &= 5 \\
   3x + 2y &= 8
   \end{align*}
   $$
   b. Interpret the solution graphically.

4. **Quadratic Equations:**
   a. Solve the quadratic equation $2x^2 - 5x + 3 = 0$ using the quadratic formula.
   b. Discuss the nature of roots for the equation $x^2 + 4x + 4 = 0$.

5. **Triangles:**
   a. Prove the Pythagorean Theorem: $a^2 + b^2 = c^2$, where a, b, and c are the sides of a right-angled triangle.
   b. In $\triangle ABC$, if $\angle B = 90^\circ$ and $\angle A = 30^\circ$, find $\sin C$.

6. **Coordinate Geometry:**
   a. Find the distance between the points $(3, -2)$ and $(-1, 4)$.
   b. Show that the points $(-1, 3)$, $(4, -2)$, and $(5, 7)$ form a right-angled triangle.

7. **Trigonometry:**
   a. Find the value of $\sin 45^\circ + \cos 45^\circ$.
   b. If $\tan \theta = \frac{3}{4}$, find $\cos \theta$.