1. What are all values of $x$ for which the inequality $5x + \frac{5}{3} \leq -2x - \frac{2}{3}$ is true?

2. A straight line on a graph passes through the points (3,2) and (4,4). Give the equation of the line which is perpendicular to this line and passes through the point (1,3). Write your answer in the form $ax + by = c$ with $a$, $b$, $c$ relatively prime integers and $a > 0$.

3. If the circumference of a circle is increased 100% then the area is increased by what percentage?

4. Find the area of the shaded region contained in the three triangles below.

5. Two times a number is increased by 8. If the result is 2 less than three times one less than the number, find the number.

6. What is the percentage change in the area of a rectangle if its length increases by 40% and its width decreases by 30%?

7. A burger, an order of fries and a soda cost $2.90. Two burgers, an order of fries and a soda cost $4.40. A burger and a soda cost $2.10. Determine the cost of a meal consisting of three burgers, two orders of fries and a soda.
8. A square with side length 8 cm is inscribed in a circle. Find the area of the circle.

9. Find all of the roots of the equation \( x + \sqrt{x - 2} = 3 \).

10. The lines K and L are parallel in the diagram below. What is the value of \( x \)?

11. Find all values of \( x \) if \( \frac{1}{x} + \frac{3}{y} = 3 \) and \( \frac{1}{x} + y = 1 \).

12. A unit square is sitting on a flat surface as shown in the picture below. If the square begins rolling clockwise along the flat surface, what is the total distance travelled by the point A during one revolution of the square?

13. The rectangular coordinates of three points in a plane are \( Q(-3, -1) \), \( R(-2, 3) \), and \( S(1, -3) \). A fourth point \( T \) is chosen so that the line segment \( ST \) is parallel to the line segment \( QR \), and the length of \( ST \) is twice the length of \( QR \). Give all possible choices for the \( y \)-coordinate of \( T \).

14. Consider the points given by \( Q(-2, 4) \) and \( R(3, 7) \) in the \( xy \)-plane. Give the coordinates of the point \( P \) along the \( x \)-axis so that the length of \( QP \) plus the length of \( PR \) is as small as possible.