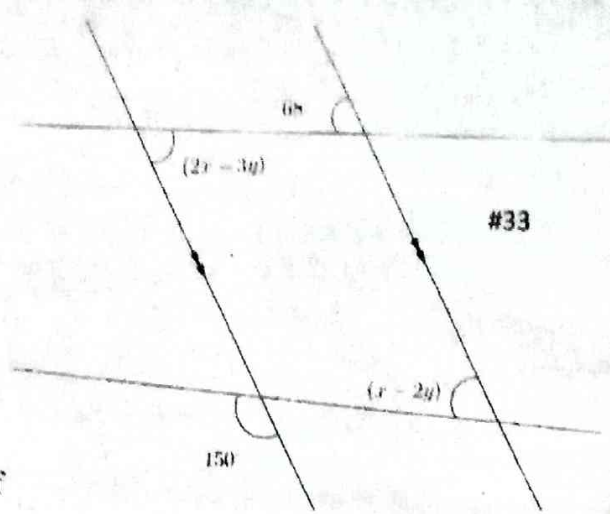


32. Right $\triangle ABC$, with right angle at C , has sides $b = 5$ and $c = 7$. Find $\csc B$.

33. In the following figure, the double arrows indicate parallel lines. Find x .

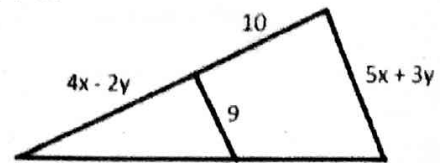


34. What is the perimeter of an equilateral triangle whose area is $75\sqrt{3}$ square centimeters?

35. A person is standing 40 ft away from a street light that is 25 ft tall. How tall is he if his shadow is 10 ft long?

36. What is the maximum value of $f(x) = -2x^2 - 4x + 3$?

37. The figure shows a segment joining the midpoints of two sides of a triangle. What is the sum of x and y ?



38. If $x > 1$, is $\frac{3}{2}x^{\frac{1}{2}} - \frac{3}{2}x^{-\frac{1}{2}}$ positive or negative?

39. The diagonals of a rhombus are in the ratio of 1:3. If each side of the rhombus is 10 centimeters long, find the length of the longer diagonal.

40. Find a and b so that the zeros of $ax^2 + bx + 24$ are 3 and 4.

41. Find all k so that the graph of $y = -\frac{1}{4}x^2 + kx - 9$ is tangent to the x -axis.

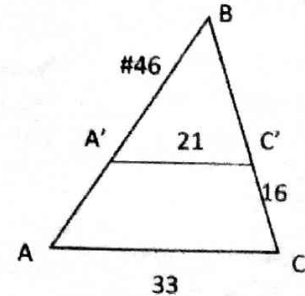
42. The diagonals of parallelogram $JKLM$ intersect at P . If $PM = 3x - 2$, $PK = x + 3$ and $PJ = 4x - 3$, find the length of PL .

43. Suppose that w varies directly as x and the square of y and inversely as the square root of z . If x is increased by 80%, y is increased by 40%, and z is increased by 44%, by how many percent will w increase?

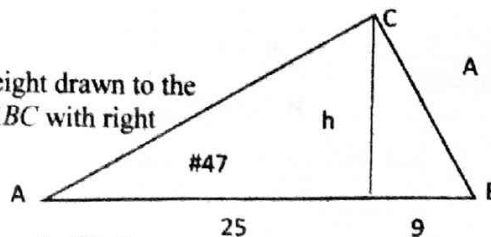
44. Find k so that the minimum value of $f(x) = x^2 + kx + 8$ is equal to the maximum value of $g(x) = 1 + 4x - 2x^2$.

45. The difference of two numbers is 22. Find the numbers so that their product is to be minimum.

46. In $\triangle ABC$ shown below, $A'C'$ is parallel to AC . Find the length of BC' .

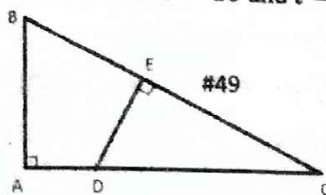


47. Find the length of h , the height drawn to the hypotenuse, of the right $\triangle ABC$ with right angle at C .



48. In the figure below, $\angle BAC$ and $\angle DEC$ are both right angles, $CD = 6$, $BC = 10$, and the length of AD is one-fourth the length of AC . Find CE .

49. The number r varies jointly as s and the square of t . If $r = 6$ when $s = 12$ and $t = \frac{1}{2}$, find r when $s = 18$ and $t = \frac{3}{2}$.



50. Given the figure below with AB parallel to DE . Find the length of AB .

