

Construction

1. In the given figure, XZ is parallel to BC . $AZ = 3\text{cm}$, $ZC = 2\text{cm}$, $BM = 3\text{cm}$ and $MC = 5\text{cm}$. Find the length of XY .

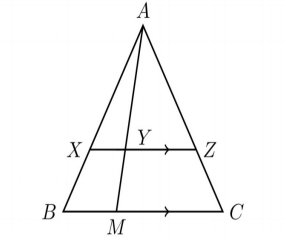


Figure 1: Isosceles Triangle

2. In the given figure, $DE \parallel BC$. If $AD = 2\text{units}$, $DB = AE = 3\text{units}$ and $EC = x\text{units}$, then find the value of x is:

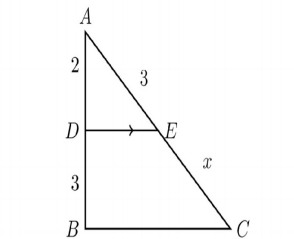


Figure 2: Right Angle Triangle

- (a) 2
- (b) 3
- (c) 5
- (d) $\frac{9}{2}$

3. In the given figure, $\triangle ABC$ and $\triangle DBC$ are on the same base BC . If AD intersects BC at O , prove that $\frac{\text{ar}(\triangle ABC)}{\text{ar}(\triangle DBC)} = \frac{AO}{DO}$.

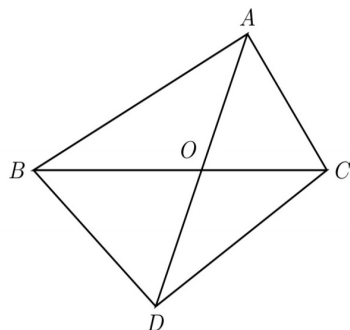


Figure 3: Triangles with same base

Linear

4. **Assertion (A):** Point $\mathbf{P}(0,2)$ is the point of intersection of y - *axis* with the line $3x + 2y = 4$.
Reason (R): The distance of point $\mathbf{P}(0,2)$ from x - *axis* is 2 units.
5. If the pair of equations $3x - y + 8 = 0$ and $6x - ry + 16 = 0$ represent coincident lines, then the value of ' r ' is:
- (a) $-\frac{1}{2}$
 - (b) $\frac{1}{2}$
 - (c) -2
 - (d) 2
6. The of linear equations $2x = 5y + 6$ and $15y = 6x - 18$ represents two lines which are:
- (a) intersecting
 - (b) parallel
 - (c) coincident
 - (d) either intersecting or parallel
7. Find the equations of the diagonals of the parallelogram **PQRS** whose vertices are $\mathbf{P}(4,2,-6)$, $\mathbf{Q}(5,-3,1)$, $\mathbf{R}(12,4,5)$ and $\mathbf{S}(11,9,-2)$. Use these equations to find the point of intersection of diagonals.
8. A line l passes through point $(-1,3,-2)$ and is perpendicular to both the lines $\frac{x}{1} = \frac{y}{2} = \frac{z}{3}$ and $\frac{x+2}{-3} = \frac{y-1}{2} = \frac{z+1}{5}$. Find the ctor equation of the line l . Hence, obtain its distance from origin.