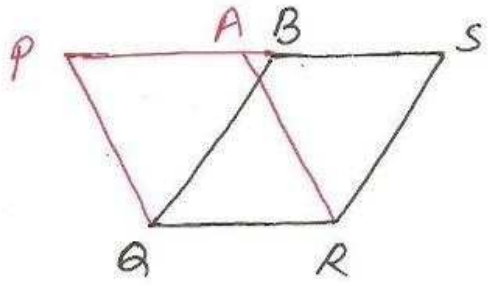
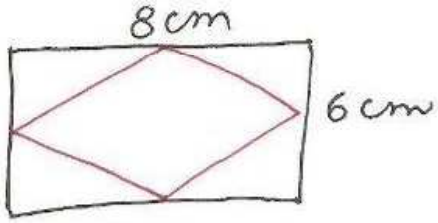
ex 9.1 exemplar, ix

1. triangles of equal area (A)

2. (D)



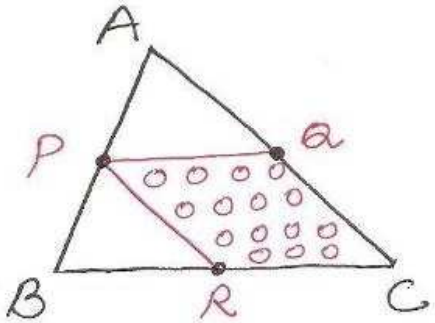
□QRSB, □QRAP

3. 

rhombus of area 24 cm^2 (D)

4. DC × DL (C)

5. Perimeter ABCD > Perimeter ABEM (C)

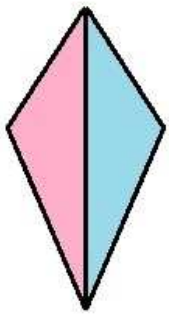
6. 

$\frac{1}{2}$ ar(ABC) (A)

7. 1:1 (B)

8. (D)

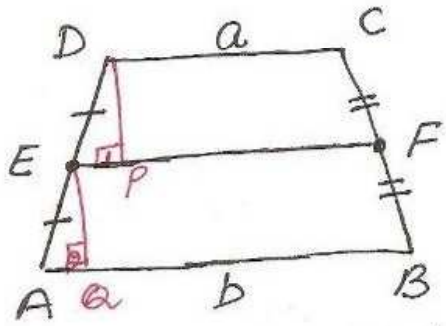
It may be a kite, in which one diagonal divides it into two triangles equal in area.



9. 1:2 (B)

10. (3a+b) : (a+3b)

(B)



EF joins midpts of legs of a trap.

EF ∥ AB ∥ DC

$EF = \frac{1}{2}(a+b)$

$\angle DEF = \angle EAB$ (corres ∠s)

In △DPE and △EQA

$\angle 1 = \angle 2 = 90°$

$\angle DEF = \angle EAB$

$DE = EA$

∴ △DPE ≅ △EQA by AAS cor.

$DP = EQ = h$ (cpct)

$$\frac{ar(\text{trap } ABFE)}{ar(\text{trap } EFCD)} = \frac{\frac{1}{2}\left[a+\frac{1}{2}(a+b)\right]h}{\frac{1}{2}\left[b+\frac{1}{2}(a+b)\right]h} = \frac{3a+b}{a+3b}$$