$8\frac{1}{2} + 8 + 9 + 12 + 6\frac{1}{2}$

27 Abhinav IX B Math

Part - A

Section - 1

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1. $\frac{115}{2} = 57.5$ (d)

2. (b)

3. $5x = 180$

$x = 36$, $3x = 108$

(c)

4. i) $5x + 3x + 7x = 180$

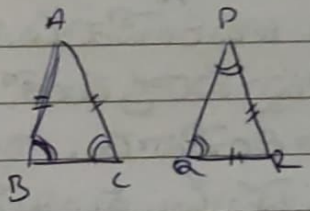
$x = 12$

60, 36, 84 are angles.

(b)

5. b

6. i)

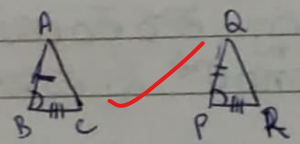


(a) X

7. (c)

8 (a)

9.



2. Name the Congruence.

10. $90 - a = 180 - 3a$

$2a = 90$

$a = 45$

(c)

$8\frac{1}{2}$

Section - II

11. i) b
ii) d
iii) d
iv) d
v) d

12. i) d
ii) a) 60
iii) b
iv) $5x + x = 90$
$6x = 90$
$x = \frac{90}{6} = 15$
$5x = 75$
(c)
v) $6x = 180$
$x = 30$
(b)

Part - B
Section - I

13. $\angle DAC = 180 - 108$ (Linear pair)
$= 72$
$\angle DAB : \angle BAC = 1 : 3$
$1x + 3x = 72$
$4x = 72$
$x = 18$
$\angle DAB = 18^\circ$

__/__/____

27 Abhinav IxB Math

$\triangle ADB$ is an ~~isos~~ isosceles triangle because

$AB = DB$

$\Rightarrow \angle DAB = \angle ADB$.

(2) $18 = \angle ABB$ (Substituting $\angle DAB$)

In $\triangle ADC$,

$\angle DAC + \angle ADC + x = 180$

$72 + 18 + x = 180$

$90 + x = 180$

$\boxed{x = 90}$ ✓

Q.14 i) $\angle x = 180 - \angle 2$

$\angle y = 180 - \angle 1$

$\angle z = 180 - \angle 3$

$\angle x + \angle y + \angle z = (180 - \angle 2) + (180 - \angle 1) + (180 - \angle 3)$

$= (180 + 180 + 180) - (\angle 2 + \angle 1 + \angle 3)$

(2) $= 3 \times 180 - 180$ (Sum of angles in $\triangle$le is 180)

$= 540 - 180 = 360°$

$\therefore$ Sum of exterior ~~angles~~ = 360°

Q.15. ~~Sol~~ $\angle PQD = 180 - 60$ (linear pair)

(1) $\angle PQD = 120$

$\angle RQP = 25 + 120 = 145$ ✓

$\angle RQP = \angle SRQ$ (Alternate ~~opposite~~ interior angles)

$140 = \angle SRQ$

$\angle RQP = \angle QRS = 140$ ✗

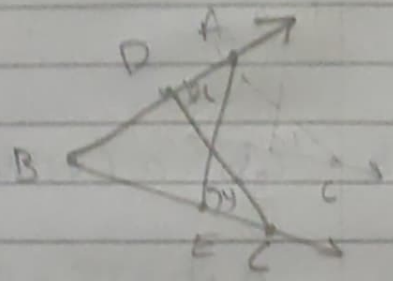
27 Abhinav IX B Math

16. In $\triangle ABE$ and In $\triangle CBD$

$AB = CB$ (given)

$\angle CBD = \angle ABE$ (same angle)

~~$\angle AEB = \angle CDB$~~



$\angle CDB = 180 - x$

$\angle AEB = 180 - y$

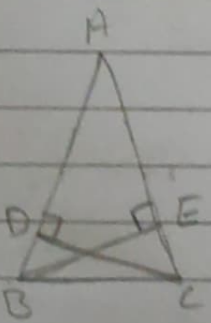
$= 180 - x$ (replacing y with x as they are equal)

(2) $\Rightarrow \angle CDB = \angle AEB$

$\therefore$ By AAS $\triangle ABE \cong CBD$

$AE = CD$ by CPCT

17.



In $\triangle BEC$ and $\triangle CDB$

$BC = BC$ (same side)

$BE = CD$ (given)

$\angle BEC = \angle CDB = 90$ (altitudes)

$\therefore$ By RHS, $\triangle BEC \cong \triangle CDB$

$\angle B = \angle C$ by CPCT

(2) As angles are equal, triangle is isoceles triangle.

27 Abhinav Math IX B

Part - B

Section - II

18. $4b = a$ (vertically opposite)

$a + b + 75 = 180$ (on same line)

$4b + b + 75 = 180$ (substituting A)

$5b = 105$

$b = 21$

$a = 4b$

$= 84$ ✓

3

$2c = 75 + b$ (vertically opposite angles)

$2c = 75 + 21$

$2c = 96$

$c = 48$

$a = 84$ ✓

$b = 21$

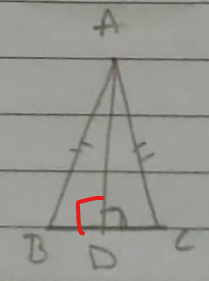
$c = 48.$

19. In $\triangle ABD$ and $\triangle ACD$

$AB = AC$ (given)

$\angle ADB = \angle ADC = 90$ (given)

$AD = AD$ (common)



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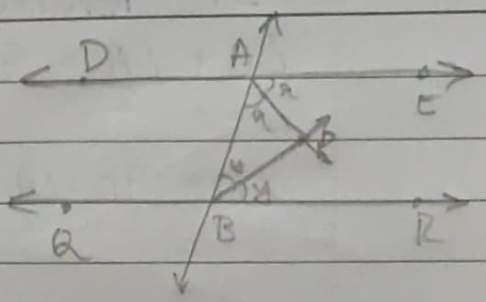
$\therefore$ By RHS $\triangle ABD \cong \triangle ACD$

$\angle B = \angle C$ (By CPCT) ✓

20. $2x + 2y = 180$ (co-interior)

$2(x+y) = 180$

$x+y = 90$



(3) In $\triangle APB$

$\angle APB + (x+y) = 180$ (angle sum property)

$\angle APB + 90 = 180$

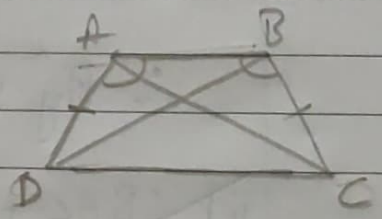
$\angle APB = 90$

21. i) In $\triangle ADB$ and $\triangle BCA$,

$AB = AB$ (comman)

$AD = BC$ (given

$\angle BAD = \angle ABC$



(3) By SAS, $\triangle BAD \cong \triangle ABC$

By CPCT, $BD = AC$

$\angle ABD = \angle BAC$

Section - III

23. $\angle ABC = 180 - 2x$

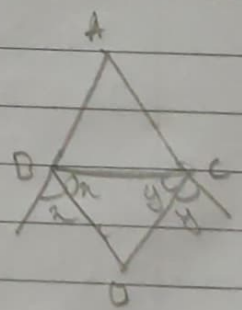
$\angle ACB = 180 - 2y$

$180 - 2x + 180 - 2y + \angle A = 180$

$360 - 2x - 2y + \angle A = 180$

$2(180 - (x+y)) + \frac{A}{2} = 180$

$180 - (x+y) + \frac{A}{2} = 90$ ——— (1)



(5) In $\triangle BCO$

$x + y + \angle O = 180$

$\angle O = 180 - (x+y)$

Substituting in (1),

27 Abhinav IX B Math

$\angle O + \frac{\angle A}{2} = 90$

$\angle O = 90 - \frac{\angle A}{2}$

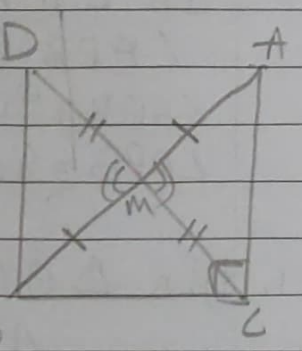
22. i) In $\triangle AMC$ and DMB

$DM = CA$

$BM = MA$

$\angle DMB = AMC$ (vertically)

$\therefore$ By SAS, $\triangle AMC \cong \triangle BMD$



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ii) $\angle BAC + \angle ABC + 90 = 180$

$\angle BAC + \angle ABC = 90$

$\angle BAC = 90 - \angle ABC$

$\angle BAC = \angle MBD$ (CPCT)

$\angle DBC = \angle MBD + MBC$

$= 90 - ABC + MBC$