Date ____
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2) (i)

$$t^2-3 \overline{\big)\, 2t^4 + 3t^3 - 2t^2 - 9t - 12}$$

$2t^4 \quad -6t^2$

$3t^3 + 4t^2 - 9t - 12$

$3t^3 \quad \mp 9t$

$4t^2 \quad -12$

$4t^2 \quad -12$

0

(ii)

$$\qquad 3n^2 - 4n + 2$$

$$n^2+3n+1 \overline{\big)\, 3n^4 + 5n^3 - 7n^2 + 2n + 2}$$

$3n^4 + 9n^3 + 3n^2$

$-4n^3 - 10n^2 + 2n + 2$

$-4n^3 - 12n^2 - 4n$

$2n^2 + 6n + 2$

$2n^2 + 6n + 2$

0

4)

$p(n) = n^3 - 3x^2 + n + 2$

$Q = n - 2 \qquad R = -2n + 4$

$n^3 - 3n^2 + n + 2 = g(n)(n-2) + (-2n+4)$

$\Rightarrow g(n) = \dfrac{n^3 - 3n^2 + 3n - 2}{n-2}$

$\therefore g(n) = n^2 - n + 1$

5) (i)

$p(n) = 2n^2 + 2n + 8$

$q(n) = n^2 + n + 4$

$g(n) = 2$ and $r(n) = 0$

(i) $p(x) = x^3 + x^2 + x + 1$
$q(x) = x + 1$
$g(x) = x^2 - 1$ and $r(x) = 2x + 2$

(ii) $P(x) = x^3 - x^2 + 3x + 3$
$g(x) = x^2 + 2$
$q(x) = x - 1$ and $r(x) = 5$

5. In ΔRPQ and ΔRTS
$\angle P = \angle RTS$ [Given]
$\angle R = \angle R$ [common]
$\therefore$ $\Delta RPQ \sim \Delta RTS$ [AA]

6. $\Delta ABE \cong \Delta ACD$, [Given]
$AB = AC$ [By CPCT]
and $AE = AD$ [By CPCT]

$\therefore$ $\frac{AB}{AC} = \frac{AD}{AE} = \frac{1}{1}$

and $\angle DAE = \angle BAE$ [Common]
$\Delta ADE \sim \Delta ABC$ [By SAS similarity]
Hence, proved.

7. Given: AD and CE are altitudes of the ΔABC,

To prove: $\Delta AEP \sim \Delta CDP$,
$\angle AEP = \angle CDP$ [Each $90°$]
$\angle APE = \angle CPD$ [vertically opposite angles]

$\Delta AEP \sim \Delta CDP$ [AA].

(ii) In ΔABD and ΔCBE,

$\angle ADB = \angle CEB$ [Each 90°]

$\angle ABD = \angle CBE$ [Common]

$\Delta ABD \sim \Delta CBE$ [AA]

(iii) In ΔAEP and ΔADB.

$\angle AEP = \angle ADB$ [Each 90°]

$\angle A = \angle A$ [Common]

$\Delta AEP \sim \Delta \cancel{CDE} ADB$ [AA]

(iv) In ΔPDC and ΔBEC,

$\angle PDC = \angle BEC$ [Each 90°]

$\angle PCD = \angle BCE$ [Common]

$\Delta PDC \sim \Delta BEC$ [AA]

8.

In parallelogram ABCD,

$\angle A = \angle C$ ...... (i)

[Opposite angles]

In ΔABE and ΔCFB,

$\angle EAB = \angle BCF$ [Proved above]

and $\angle ABE = \angle BFC$ [Alternate angles as $AC \parallel AB$]

$\therefore \Delta ABE \sim \Delta CFB$ [By AA similarity]

Hence proved.

9.

In ΔABC and ΔAMP

$\angle B = \angle AMP$ [Each 90°]

$\angle A = \angle A$ [Common]

$\Rightarrow \Delta ABC \sim \Delta AMP$ [AA]

$\triangle ABC \sim \triangle AMP$ [Proved Above]

$\Rightarrow \frac{CA}{PA} = \frac{CB}{PM}$

Ratio of the corresponding sides of similar triangles