Chater : Number System

1. The following solutions have some errors. identify them and write the correct steps also add the remaining part of solution

a) $3.\overline{26}$

$x = 3.\overline{26}26$

$10x = 32.\overline{62}6$

$100x = 326.\overline{26}26$

$100x - x = (326.\overline{26}26 - 3.\overline{26}26)$

$99x = \frac{323}{99}$

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b Simplify by rationalising the denominator : $\frac{7-\sqrt{5}}{7+\sqrt{5}}$

$$\frac{7-\sqrt{5}}{7+\sqrt{5}} \times \frac{7-\sqrt{5}}{7-\sqrt{5}}$$

$$\frac{(7-\sqrt{5})^2}{(7-\sqrt{5})^2}$$

$$\frac{14-5-2\times 7\times\sqrt{5}}{14-5}$$

$$\frac{9-14\sqrt{5}}{9}$$

c) Find the values a and b given $\frac{3+\sqrt{7}}{3-\sqrt{7}} = a+b\sqrt{7}$

$$\frac{3+\sqrt{7}}{3-\sqrt{7}} \times \frac{3+\sqrt{7}}{3+\sqrt{7}}$$

$$\frac{(3+\sqrt{7})^2}{(3)^2+(\sqrt{7})^2}$$

$$9+7+2\times 3\times\sqrt{7}$$
$$16 + 6\sqrt{7}$$
$$=$$

d). $[5(8^{\frac{1}{3}} + 27^{\frac{1}{3}})^3]^{\frac{1}{4}}$

~~$[5(8^{\frac{1}{3}} + 9^{\frac{1}{2}})^3]^{\frac{1}{4}}$~~

$[5^1(2^{3\times\frac{1}{3}} + 3^{\frac{1}{3}})^3]^{\frac{1}{4}}$

$[5^1(5)^3]^{\frac{1}{4}}$

$[5^1(5)^3]^{\frac{1}{4}}$

$[5^4]^{\frac{1}{4}}$

5

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