Exercise 1B

Question 1:

(i) $\frac{13}{80}$

$$\frac{13}{80} = \frac{13}{2 \times 2 \times 2 \times 2 \times 5} = \frac{13}{2^4 \times 5}$$

If the prime factors of the denominator are 2 and/or 5 then the rational number is a terminating decimal.
Since, 80 has prime factors 2 and 5,13/80 is a terminating decimal.

(ii) $\frac{7}{24}$

$$\frac{7}{24} = \frac{7}{2 \times 2 \times 2 \times 3} = \frac{7}{2^3 \times 3}$$

If the prime factors of the denominators of the fraction are other than 2 and 5, then the rational number is not a terminating decimal.
Since, 24 has prime factors 2 and 3 and 3 is different from 2 and 5, 7/24 is not a terminating decimal.

(iii) $\frac{5}{12}$

$$\frac{5}{12} = \frac{5}{2 \times 2 \times 3} = \frac{5}{2^2 \times 3}$$

If the prime factors of the denominators of the fraction are other than 2 and 5, then the rational number is not a terminating decimal.
Since 12 has prime factors 2 and 3 and 3 is different from 2 and 5, 5/12 is not a terminating decimal.

(iv) $\frac{8}{35}$

$$\frac{8}{35} = \frac{8}{5 \times 7}$$

If the prime factors of the denominators of the fraction are other than 2 and 5, then the rational number is not a terminating decimal.
Since 35 has prime factors 5 and 7, and 7 is different from 2 and 5, 8/35 is not a terminating decimal.

(v) $\frac{16}{125}$

$$\frac{16}{125} = \frac{16}{5 \times 5 \times 5} = \frac{16}{5^3}$$

If the prime factors of the denominator are 2 and/or 5 then the rational number is a terminating decimal.
Since 125 has prime factor 5 only
16/125 is a terminating decimal.

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