Rational and Irrational numbers

Solution

➢ MC Question

10. Answer is C

$2\sqrt{5}-5+2-\sqrt{5}=\sqrt{5}-3$

11. Answer is D

A π is not rational

B not a recurring decimal, so it is not rational

C $\sqrt{19+20}=\sqrt{39}$, so it is irrational

D $\left(4\sqrt{5}\right)^2+8=16\times5+8=88$, so it is rational

12. Answer is D

Let x be $2.\dot{5}$

$10x=25.5555\ldots$

$10x-x=25-2$

$9x=23$

$x=\frac{23}{9}$

Let y be $1.7\dot{5}$

$10y=17.\dot{5}$

$100y=175.\dot{5}$

$100y-10y=175-17$

$90y=158$

$y=\frac{158}{90}=\frac{79}{45}$

$\therefore 2.\dot{5}-1.7\dot{5}=\frac{23}{9}-\frac{79}{45}=\frac{4}{5}$

➢ Short Question

1. Let x be $4.\dot{3}$

$10x=43.\dot{3}$

$10x-x=43.\dot{3}-4.\dot{3}$

$9x=39$

$x=\frac{39}{9}=\frac{13}{3}$

$\therefore 4.\dot{3}=\frac{13}{3}$

2. **(a)** $2.7\dot{5}$ is a recurring decimal, so it is rational

(b) -275 is an integer, so it is rational

(c) $\frac{85}{3}$ is a fraction, so it is rational

(d) $\sqrt{63}=\sqrt{9\times7}=3\sqrt{7}$, so it is irrational