Number System Formative assessment

1. Without actually performing division, state which of these number will terminating decimal expression or non terminating repeating decimal expression

a) 7/25

b) 3/7

c) 29/343

d) 6/15

e) 77/210

f) 11/67

g) 15/27

Solution

Those rational number which can be expressed in form $x/2^m X5^n$ are terminating expression and those can not be are non terminating decimal expression

Terminating decimal: (a), (d)

Non terminating repeating decimal: (b), (c), (e), (f), (g)

2. Rationalize the expression

a) $\frac{2+\sqrt{3}}{2-\sqrt{3}}$

b) $\frac{\sqrt{3}+\sqrt{2}}{\sqrt{3}-\sqrt{2}}$

Solution

$a)$ $$\frac{2+\sqrt{3}}{2-\sqrt{3}} X \frac{2+\sqrt{3}}{2+\sqrt{3}} = \frac{4+4\sqrt{3}+3}{4-3} = 7+4\sqrt{3}$$

3) Write 10 rational number between

a) 4 and 5

b) 1/2 and 1/3

4) Represent in rational form.
a)1.232323….
b) 1.25
c) 3.67777777

5) Prove that $2+\sqrt{3}$ is a irrational number

6) **True or False statement**
a) Every Real number is a Rational numbers
b) Every irrational number is a Real numbers
c) Every whole number is a natural number
d) Every integer is a rational number
e) Every rational number is a whole number
f) There are infinite integers between two integers
g) There are finite rational number between 2 and 3
h) $\sqrt{3}$ Can be expressed in the form $\frac{\sqrt{3}}{1}$,so it is a rational number

Solution

a) False ,since real number includes both rational and irrational number
b) True
c) False,as 0 is not natural number
d) True ,as any integer can be expressed in the form p/q
e) False
f) False,There are finite integer between two integers
g) False
h) False

Multiple choice Questions

7) which is of these a irrational number
a) 3/2
b) $\frac{\sqrt{12}}{\sqrt{3}}$
c) 5.222222……
d) $\frac{\sqrt{12}}{2}$

Solution (d)

8. Which is of these a rational number?
a) 1.234567…..
b) .333333…
c) 1.423153652….
d) None of these

Solution (b)

9) if $x = 2 + \sqrt{3}$ and y=$\frac{1}{2+\sqrt{3}}$
Then what is the value of $x^2 + y^2$

a)8
b)10
c) 12
d) 14

Solution ©

Simplify Following expression

a) $6^{\frac{1}{3}} X 6^{\frac{2}{3}}$
b) $\frac{4}{216^{\frac{2}{3}}} + \frac{1}{256^{\frac{3}{4}}} + \frac{2}{243^{\frac{1}{5}}}$
c) $\frac{25^{\frac{1}{2}}}{25^{\frac{1}{4}}}$