Answers Sheet

Recurring Decimals to Fractions

1.

$= 0.33333.....$
$= 0.\dot{3}$

2.

$= 0.545454….$
$= 0.\dot{5}\dot{4}$

3.

$= 0.16666.....$
$= 0.1\dot{6}$

4.

$0.\dot{7} = x$ ……. **(i)**
$7.\dot{7} = 10x$ ……. **(ii)**
(ii) – (i)
$7 = 9x$
$x = 7 / 9$

5.

$0.4\dot{8} = x$
$4.\dot{8} = 10x$ ……. **(i)**
$48.\dot{8} = 100x$ ……. **(ii)**
(ii) – (i)
$44 = 90x$
$x = 44 / 90$
$x = 22 / 45$

6.

$0.2\dot{1} = x$
$2.\dot{1} = 10x$ ……. **(i)**
$21.\dot{1} = 100x$ ……. **(ii)**
(ii) – (i)
$19 = 90x$
$x = 19 / 90$

7.

$0.1\dot{9} = x$
$1.\dot{9} = 10x$ ……. **(i)**
$19.\dot{9} = 100x$ ……. **(ii)**
(ii) – (i)
$18 = 90x$
$x = 18 / 90$
$x = 1 / 5$

8.

$0.3\dot{3} = x$
$3.\dot{3} = 10x$ ……. **(i)**
$33.\dot{3} = 100x$ ……. **(ii)**
(ii) – (i)
$30 = 90x$
$x = 30 / 90$
$x = 1 / 3$

9.

$0.4\dot{9} = x$
$4.\dot{9} = 10x$ ……. **(i)**
$49.\dot{9} = 100x$ ……. **(ii)**
(ii) – (i)
$45 = 90x$
$x = 45 / 90$
$x = 1 / 2$

10.

$0.2\dot{3}\dot{4} = x$

$2.\dot{3}\dot{4} = 10\ x$ …… **(i)**

$234.\dot{3}\dot{4} = 1000x$ ……. **(ii)**

(ii) = (i)

$232 = 990x$

$x = 232 / 990$

$x = 116 / 495$

11.

$0.\dot{4}8\dot{3} = x$ …. **(i)**

$483.\ \dot{4}8\dot{3} = 1000x$ …… **(ii)**

(ii) – (i)

$483 = 999x$

$x = 483 / 999$

$x = 161 / 333$

12.

$0.\dot{3}1\dot{5} = x$ …. **(i)**

$315.\ \dot{3}1\dot{5} = 1000x$ …… **(ii)**

(ii) – (i)

$315 = 999x$

$x = 315 / 999$

$x = 105 / 333$

13.

$4.82\dot{3}\dot{3} = x$

$48.\dot{2}\dot{3} = 10x$ …. **(i)**

$4823.\dot{2}\dot{3} = 1000x$ …… **(ii)**

(ii) – (i)

$4775 = 990x$

$x = 4775 / 990$

$x = 955 / 198$

14.

$2.6\dot{5}\dot{1} = x$

$26.\dot{5}\dot{1} = 10x$ …. **(i)**

$2651.\dot{5}\dot{1} = 1000x$ …… **(ii)**

(ii) – (i)

$2625 = 990x$

$x = 2625 / 990$

$x = 525 / 198$

15.

$1.\dot{4}1\dot{3} = x$ …. **(i)**

$1413.\ \dot{4}1\dot{3} = 1000x$ …… **(ii)**

(ii) – (i)

$1412 = 999x$

$x = 1412 / 999$

16.

$0.\dot{0}\dot{x} = y$…… **(i)**

$0x.\dot{0}\dot{x} = 100y$ …. **(ii)**

(ii) – (i)

$x = 99y$

$y = x / 99$

17.

$0.\dot{6}\dot{3} = x$ ……. **(i)** , $0.\dot{6} = y$ ….. **(i)**

$63.\dot{6}\dot{3} = 100\ x$ …… **(ii)** , $6.\dot{6} = 10y$ ….. **(ii)**

(ii) = (i) , **(ii) – (i)**

$63 = 99x$, $6 = 9y$

$x = 63 / 99$, $y = 6 / 9$

$x = 7 / 11$, $y = 2 / 3$

$= (7 / 11) \times (2 / 3)$

$= 14 / 33$

18.

$0.\dot{2}\dot{1} = x$ ……. **(i)**	,	$0.\dot{2}\dot{4} = y$ ….. **(i)**
$21.\dot{2}\dot{1} = 100\ x$ …… **(ii)**	,	$24.\dot{2}\dot{4} = 100y$ ….. **(ii)**
(ii) - (i)		**, (ii) – (i)**
$21 = 99x$	,	$24 = 99y$
$x = 21 / 99$	,	$y = 24 / 99$
$x = 7 / 33$	,	$y = 8 / 33$

$= (7 / 33) \div (8 / 33)$
$= (7 / 33) \times (33 / 8)$
$= 7 / 8$

19.

$0.0\dot{9} = x$	,	$0.\dot{1}4\dot{1} = y$ ….. **(i)**
$0.\dot{9} = 10\ x$ ….. **(i)**	,	$141.\dot{1}4\dot{1} = 1000\ y$ …. **(ii)**
$9.\dot{9} = 100\ x$ ….. **(ii)**	,	**(ii) – (i)**
(ii) – (i)	,	$141 = 999\ y$
$9 = 90\ x$	,	$y = 141 / 999$
$x = 9 / 90$	,	$y = 47 / 333$
$x = 1 / 10$		

$= (1 / 10) \div (47 / 333)$
$= (7 / 33) \times (333 / 47)$
$= 777 / 517$
