



### MATHS

### **BOOKS - KALYANI PUBLICATION**

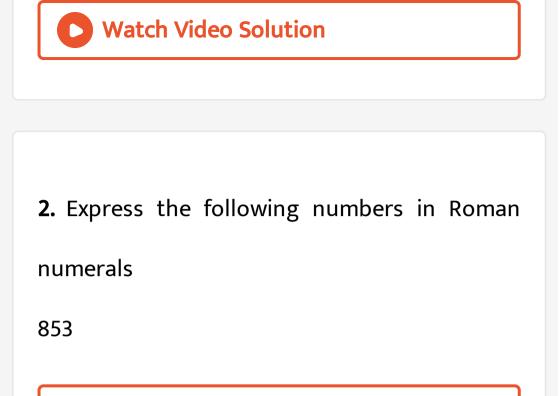
### SYSTEM OF NUMERATION



#### 1. Express the following numbers in Roman

numerals

329



**Watch Video Solution** 

3. Express the following numbers in Roman

numerals

3624





4. Express the following numbers in Roman

numerals

7002

Watch Video Solution

5. Express the following numbers in Indo

Arabian System.

MXL

**6.** Express the following numbers in Indo Arabian System.

 $\overline{L}DXLVII$ 

Watch Video Solution

### 7. Express the following numbers in Indo

Arabian System.

CXCV.

**8.** Convert the number 970 of decimal system in to a system, where the numeration is based on five. In other word convert the number 970 of decimal system into the quinary system of numeration.

Watch Video Solution

9. Convert the following number into decimal

system

 $(2313)_{four}.$ 



#### 10. Convert the following number into decimal

system

 $(2134)_{five}$ .



**11.**  $(245)_x$  is a number in a numeral system whose radix is x. If its decimal conversion is 101 then find x.

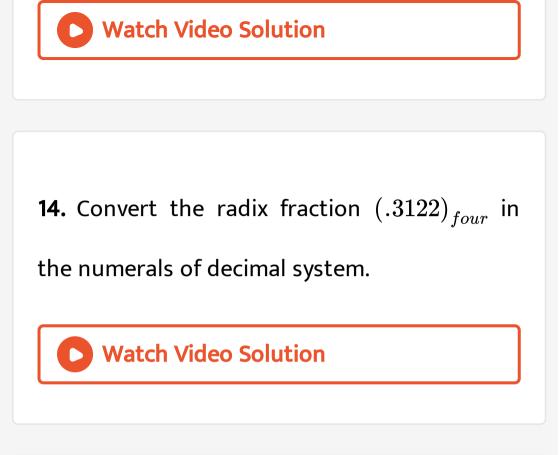




12.  $(21)_x$  and  $(25)_{x+2}$  are two numbers in two numeral system whose bases are x and x + 2. If their decimal conversion are y and 2y - 1respectively, find x and y.

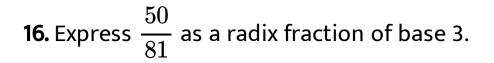


**13.** Convert the number 15251 of decimal system into the numerals of Duodenary system (base 12).



15. Express the decimal fraction .312 as radix

fraction in the numerals of radix 5.





17. Convert the number 5324.625 into the

system of numbers of radix 4.



18. Express 121 in binary system of numerals.

**19.** Converts  $(101001)_{two}$  into decimal system.

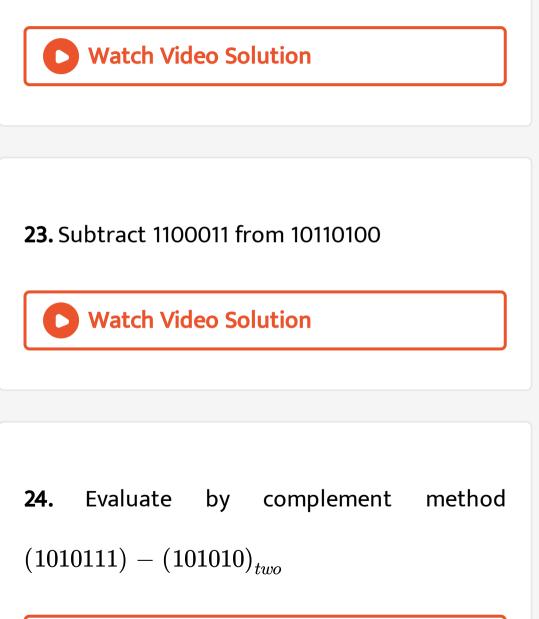


#### **20.** Find the sum 1010111 + 10100

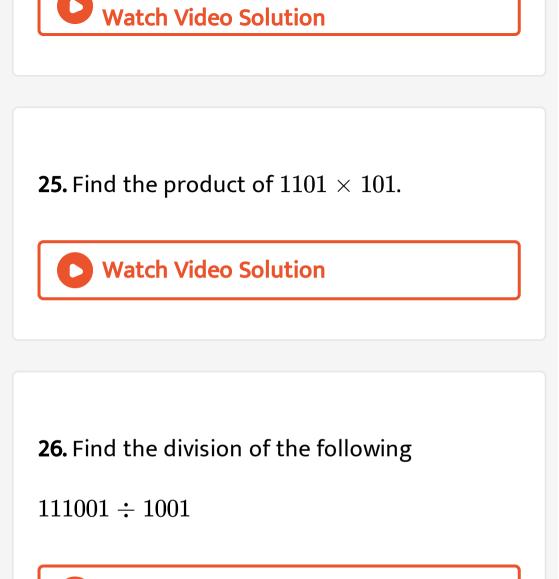
Watch Video Solution

**21.** Find the sum 101011 + 110011

#### **22.** Find the sum 10110 + 1010 + 111011







27. Find the division of the following

 $10101011 \div 1101$ 

Watch Video Solution

### **28.** Express the following decimal system number in numeral of binary system.

5.

29. Express the following decimal systemnumber in numeral of binary system.9.



### **30.** Express the following decimal system number in numeral of binary system.

12



**31.** Express the following decimal system

number in numeral of binary system.

18



# **32.** Express the following decimal system number in numeral of binary system.

26

33. Express the following decimal system number in numeral of binary system. 29 Watch Video Solution 34. Express the following decimal system number in numeral of binary system. 32

**35.** Express the following decimal system number in numeral of binary system.

**Watch Video Solution** 

**36.** Express the following decimal system number in numeral of binary system.

50

44

37. Express the following decimal systemnumber in numeral of binary system.111



# **38.** Express the following decimal system number in numeral of binary system.

173

39. Express the following decimal system number in numeral of binary system.

196

Watch Video Solution

number in numeral of binary system.

40. Express the following decimal system

236

41. Express the following decimal systemnumber in numeral of binary system.



### **42.** Express the following decimal system number in numeral of binary system.

298

**43.** Express the following decimal systemnumber in numeral of binary system.331



# **44.** Express the following decimal system number in numeral of binary system.

382

45. Express the following decimal system number in numeral of binary system. 515 Watch Video Solution 46. Express the following decimal system number in numeral of binary system.

1120

**47.** Express the following decimal system number in numeral of binary system.



### **48.** Express the following binary system number in numeral of decimal system.

100

49. Express the following binary system number in numeral of decimal system.101



# **50.** Express the following binary system number in numeral of decimal system.

110

51. Express the following binary system number in numeral of decimal system. 111 Watch Video Solution 52. Express the following binary system number in numeral of decimal system. 1000 Watch Video Solution

53. Express the following binary systemnumber in numeral of decimal system.1001



## **54.** Express the following binary system number in numeral of decimal system.

1010

55. Express the following binary systemnumber in numeral of decimal system.1011

**56.** Express the following binary system number in numeral of decimal system.

1110

Watch Video Solution

57. Express the following binary system number in numeral of decimal system. 1111 Watch Video Solution 58. Express the following binary system number in numeral of decimal system. 10001 Watch Video Solution

59. Express the following binary systemnumber in numeral of decimal system.11001



# **60.** Express the following binary system number in numeral of decimal system.

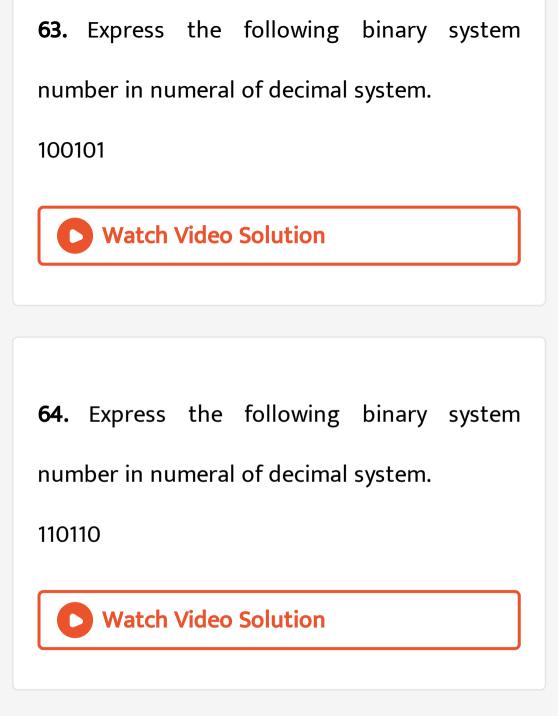
100101



61. Express the following binary system
number in numeral of decimal system.
11100
Watch Video Solution

# **62.** Express the following binary system number in numeral of decimal system.

10011



65. Express the following binary systemnumber in numeral of decimal system.100001



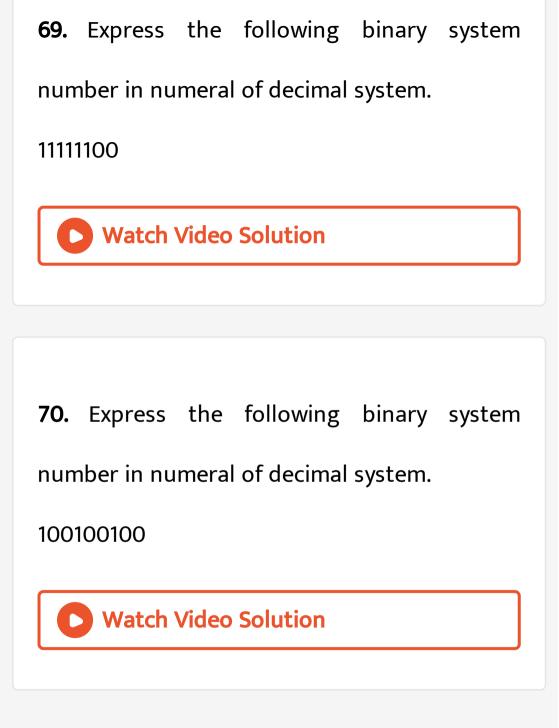
# **66.** Express the following binary system number in numeral of decimal system.

10001001

67. Express the following binary system
number in numeral of decimal system.
11100101
Watch Video Solution

# **68.** Express the following binary system number in numeral of decimal system.

1111111



71. Express the following binary systemnumber in numeral of decimal system.101000111



# **72.** Express the following binary system number in numeral of decimal system.

1100111111

73. Evaluate the following sum (The base two

in each case)

101 + 11

Watch Video Solution

74. Evaluate the following sum (The base two

in each case)

101 + 101

in each case)

110 + 101

Watch Video Solution

**76.** Evaluate the following sum (The base two

in each case)

 $111 \div 111$ 

in each case)

1101 + 111



## 78. Evaluate the following sum (The base two

in each case)

1011 + 1010

in each case)

1100 + 1110

Watch Video Solution

80. Evaluate the following sum (The base two

in each case)

10101 + 1101

in each case)

 $10110 \div 1011$ 

Watch Video Solution

82. Evaluate the following sum (The base two

in each case)

 $11100\div111$ 

in each case)

10001 + 1000



## 84. Evaluate the following sum (The base two

in each case)

11101 + 10111

in each case)

111111 + 11110

Watch Video Solution

86. Evaluate the following sum (The base two

in each case)

111111 + 101010

in each case)

1011001 + 1110111

Watch Video Solution

88. Evaluate the following sum (The base two

in each case)

 $110\div110+11$ 

in each case)

1110 + 101 + 1010

Watch Video Solution

90. Evaluate the following sum (The base two

in each case)

1010 + 1101 + 101

in each case)

10101 + 1001 + 10110

Watch Video Solution

92. Evaluate the following sum (The base two

in each case)

1110 + 101 + 1001 + 110

in each case)

10010 + 1010 + 11010 + 10101

Watch Video Solution

94. Evaluate the following sum (The base two

in each case)

 $11011 \div 1001 + 100 + 10101$ 

in each case)

101010 + 10101 + 110101 + 101011

Watch Video Solution

96. Evaluate the following subtractions (base

in each case is two)

11 - 1

in each case is two)

11 - 10

Watch Video Solution

98. Evaluate the following subtractions (base

in each case is two)

110 - 100

in each case is two)

110 - 101

Watch Video Solution

100. Evaluate the following subtractions (base

in each case is two)

1100 - 101

in each case is two)

111-101



102. Evaluate the following subtractions (base

in each case is two)

1110 - 1010

in each case is two)

1000 - 101

Watch Video Solution

## 104. Evaluate the following subtractions (base

in each case is two)

111010 - 10100

in each case is two)

11001101 - 110101

Watch Video Solution

106. Evaluate the following subtractions (base

in each case is two)

10101 - 1010

in each case is two)

101101 - 1011



## 108. Evaluate the following subtractions (base

in each case is two)

11001101 - 1110000

in each case is two)

11110101 - 1101110

Watch Video Solution

## 110. Evaluate the following subtractions (base

in each case is two)

101100110 - 10011011

in each case is two)

110111010 - 101111

Watch Video Solution

# 112. Evaluate the following subtractions (base

in each case is two)

11101011101 - 1111111110

in each case is two)

110010101 - 1011110



# 114. Simplyfy (the base is two in each case)

110 - 1000 + 11



115. Simplyfy (the base is two in each case)

1010 - 1111 + 111

Watch Video Solution

116. Simplyfy (the base is two in each case)

1100 - 10000 + 1000

117. Simplyfy (the base is two in each case)

1011 - 1101 + 111

Watch Video Solution

**118.** Simplyfy (the base is two in each case)

10000 - 10100 + 1000

119. Simplyfy (the base is two in each case)

1110 - 10101 + 1100

Watch Video Solution

**120.** Simplyfy (the base is two in each case)

1010 + 110 - 101 - 111

121. Simplify (the base is two in each case)

1000 + 1011 - 100 - 1001

Watch Video Solution

122. Simplyfy (the base is two in each case)

1101 + 1010 + 11

123. Simplify (the base is two in each case)

110 + 1110 - 1000 - 1111

> Watch Video Solution

124. Evaluate the following (the base in two in

each case)  $101 \times 111$ 

each case)  $111 \times 111$ 

Watch Video Solution

126. Evaluate the following (the base in two in

each case)  $1001 \times 101$ 

each case) 111 imes 110

Watch Video Solution

128. Evaluate the following (the base in two in

each case) 1010 imes 101

each case) 110 imes 111

Watch Video Solution

## 130. Evaluate the following (the base in two in

each case) 1101 imes 1000

each case) 1110 imes 110

Watch Video Solution

132. Evaluate the following (the base in two in

each case) 1100 imes 1100

each case) 1101 imes 1011

Watch Video Solution

134. Evaluate the following (the base in two in

each case) 1111 imes 1100

each case) 10000 imes 1101

Watch Video Solution

# 136. Evaluate the following (the base in two in

each case) 1010 imes 10001

each case) 110110 imes 110011

Watch Video Solution

# **138.** Evaluate the following (the base in two in

each case) 110010 imes 11011

each case)  $1110 \div 101$ 

Watch Video Solution

140. Evaluate the following (the base in two in

each case)  $1100 \div 11$ 

each case)  $1111 \div 100$ 

Watch Video Solution

142. Evaluate the following (the base in two in

each case)  $10101 \div 110$ 

each case)  $100001 \div 111$ 

Watch Video Solution

144. Evaluate the following (the base in two in

each case)  $101111 \div 110$ 

each case)  $11011 \div 1100$ 

> Watch Video Solution

146. Evaluate the following (the base in two in

each case)  $111101 \div 1110$ 

147. Evaluate the following (the base in two in

each case)  $1001000 \div 1010$ 

Watch Video Solution

148. Evaluate the following (the base in two in

each case)  $1010100 \div 1111$ 

149. Evaluate the following (the base in two in

each case)  $1111100001 \div 1011001$ 

Watch Video Solution

150. Evaluate the following (the base in two in

each case) 100110101001 ÷ 101000

(111+101) imes 11

Watch Video Solution

152. Simplyfy, (the base is two in each cases)(110+11) imes101

(1011 - 110) imes 101

Watch Video Solution

**154.** Simplyfy, (the base is two in each cases)

 $(1001 + 111) \div 100$ 

 $(1100 + 1001) \div 111$ 

Watch Video Solution

156. Simplyfy, (the base is two in each cases)

 $(11101 - 100) \div 101$ 

 $(11111 - 1001) \div 100$ 

Watch Video Solution



 Name the following numerals in Indian place value system as well as in International Place value system.

7525625





2. Name the following numerals in Indian place value system as well as in International Place value system.

825329010



**3.** Name the following numerals in Indian place

value system as well as in International Place

value system.

90050061020



4. Name the following numerals in Indian place value system as well as in International Place value system.

72050263013

5. Name the following numerals in Indian place value system as well as in International Place value system.

523541312123

Watch Video Solution

6. Express the following number numerically

Eighty lakh seventy thousand twenty five

7. Express the following number numerically

Seventh Crore Three Lakh two Thousand and

Five.



8. Express the following number numerically

Forty two Arab Three crore seven lakh Three

Thousand four hundred two.

**9.** Express the following number numerically Fifty one Kharab two Arabsixty one crore Thirty two lakh twenty one thousand sixty nine.



**10.** Express the following number numerically

Three hundred forty million, seven hundred

thirty two thousand eight hundred twenty

one.

**11.** Express the following number numerically Fifty one billion twenty one million thirty two thousand sixty.

Watch Video Solution

**12.** Express the following number numerically Seven trillion one hundred forty billion six million two hundred thirty two thousand seventy two.





**13.** Name the number of Eighty lakh seventy thousand twenty five to Fifty one Kharab two Arabsixty one crore Thirty two lakh twenty one thousand sixty nine in international system.



**14.** Name the number of Forty two Billion Thirty Million seven hundred three thousand four hundred two and Fifty one billion twenty one million thirty two thousand sixty in Indian

system.



**15.** Write the place values of the digits within small squares of the following numbers in Inidian place value system and in international place value system.

2[7]42975

16. Write the place values of the digits within small squares of the following numbers in Indian place value system and in international place value system.

[2]43[3]56012

Watch Video Solution

**17.** Write the place values of the digits within small squares of the following numbers in Indian place value system and in international

place value system.

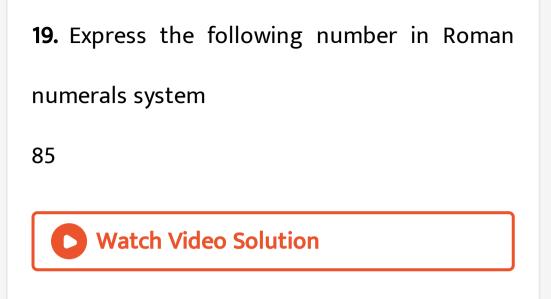
[67]52431014



**18.** Write the place values of the digits within small squares of the following numbers in Indian place value system and in international place value system.

[67]52431014





numerals system

99

numerals system

459

Watch Video Solution

22. Express the following number in Roman

numerals system

999

numerals system

1249



# 24. Express the following number in Roman

numerals system

3464

25. Express the following number in Romannumerals system6261

**26.** Express the following numbers in Roman numerals system

10,499

Watch Video Solution

numerals system

6478

Watch Video Solution

**28.** Express the following number in Roman numerals system

9601

numeral system

CIX



### 30. Express the following number in common

numeral system

XLIX

numeral system

CCCXCIX

Watch Video Solution

### 32. Express the following number in common

numeral system

DCLXI

numeral system

MCV

Watch Video Solution

**34.** Express the following number in common

numeral system

MMCCCXC

numeral system

 $\overline{C}DLC$ 



### 36. Express the following number in common

numeral system

 $\overline{V}DLIX$ 

numeral system

CLXV

Watch Video Solution

### 38. Express the following number in common

numeral system

XIIDII

**39.** Evaluate the following in Roman numerals.

XXX + XL



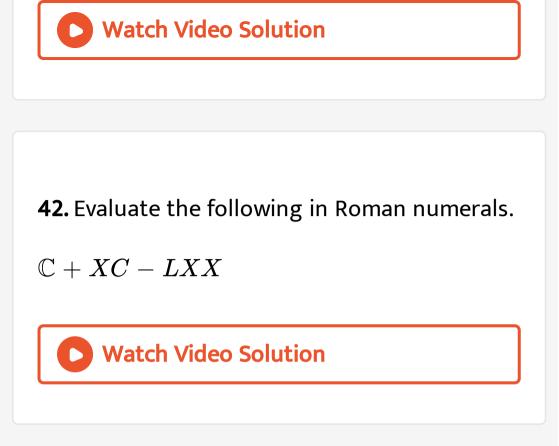
**40.** Evaluate the following in Roman numerals.

CL + XV

Watch Video Solution

**41.** Evaluate the following in Roman numerals.

XC + L + V



**43.** Evaluate the following in Roman numerals.

D + CD + DC

44. Evaluate the following in Roman numerals.

LX + XL - XX



**45.** Evaluate the following in Roman numerals.

XX + XXX + XC - XV

46. Find the correct answer giving proper

reason

ICX = 109 = CIX



**47.** Find the correct answer giving proper reason

 $I\mathbb{C} = 199 = CXCIX$ 

48. Find the correct answer giving proper

reason

VIX = 5 + 10 - 1 = 14 = XIV

Watch Video Solution

#### 49. Find the correct answer giving proper

reason

XD = 490 = CDXC

50. Find the correct answer giving proper

reason

LM = 1000 - 50 = 950 = CML

Watch Video Solution

**51.** Find the correct answer giving proper

reason

VL = 50 - 5 = 45 = XLV.

**52.** Express the following numbers of common system of numeration into a system of numeration of (a) base three (b) base five (c) base seven and (d) base eight

25

**Watch Video Solution** 

**53.** Express the following numbers of common system of numeration into a system of numeration of (a) base three (b) base five (c)

base seven and (d) base eight

#### 32



**54.** Express the following numbers of common system of numeration into a system of numeration of (a) base three (b) base five (c) base seven and (d) base eight

64

**55.** Express the following numbers of common system of numeration into a system of numeration of (a) base three (b) base five (c) base seven and (d) base eight

76

Watch Video Solution

**56.** Express the following numbers of common system of numeration into a system of numeration of (a) base three (b) base five (c)

base seven and (d) base eight

104



**57.** Express the following numbers of common system of numeration into a system of numeration of (a) base three (b) base five (c) base seven and (d) base eight

50

**58.** Express the following numbers of common system of numeration into a system of numeration of (a) base three (b) base five (c) base seven and (d) base eight

Watch Video Solution

**59.** Express the following numbers of common system of numeration into a system of numeration of (a) base three (b) base five (c)

base seven and (d) base eight

629



**60.** Express the following numbers of common system of numeration into a system of numeration of (a) base three (b) base five (c) base seven and (d) base eight

749

**61.** Express the following numbers of common system of numeration into a system of numeration of (a) base three (b) base five (c) base seven and (d) base eight

1042

Watch Video Solution

**62.** Express the following numbers of common system of numeration into a system of numeration of (a) base three (b) base five (c)

base seven and (d) base eight

1268



**63.** Express the following numbers of common system of numeration into a system of numeration of (a) base three (b) base five (c) base seven and (d) base eight

1042

**64.** Express the following number of common number system to a number system of (a) base three (b) base five

2578

Watch Video Solution

**65.** Express the following numbers of common system of numeration into a system of numeration (a) base eleven (b) base twelve 9190

**66.** Express the following numbers of common system of numeration into a system of numeration (a) base eleven (b) base twelve

11731

Watch Video Solution

**67.** Determine the decimal conversion of the following numbers of different numeration

system.

 $(233)_{eight}$ .

## Watch Video Solution

68. Determine the decimal conversion of the

following numbers of different numeration system.

 $(125)_{seven}$ .

**69.** Determine the decimal conversion of the following numbers of different numeration system.

 $(341)_{five}.$ 

Watch Video Solution

**70.** Determine the decimal conversion of the following numbers of different numeration system.

 $(101112)_{three}.$ 



**71.** Determine the decimal conversion of the following numbers of different numeration system.

 $(1100100)_{two}$ .

Watch Video Solution

**72.** Determine the decimal conversion of the following numbers of different numeration

system.

 $(1100110)_{two}.$ 

# Watch Video Solution

73. Determine the decimal conversion of the

following numbers of different numeration system.

 $(6150)_{seven}$ 

**74.** Determine the decimal conversion of the following numbers of different numeration system.

 $(6244)_{eight}$ .

Watch Video Solution

**75.** Determine the decimal conversion of the following numbers of different numeration system.

 $(1636)_{eight}.$ 



**76.** Determine the decimal conversion of the following numbers of different numeration system.

 $(31001)_{five}.$ 

Watch Video Solution

**77.** Determine the decimal conversion of the following numbers of different numeration

system.

 $(3112)_{four}$ .

# Watch Video Solution

**78.** Determine the decimal conversion of the following numbers of different numeration system.

 $(21130)_{four}.$ 

**79.** r' is the decimal of a system of numeration.

Determine r, when

The decimal conversion of  $(121)_r$  is 16



#### 80. r' is the decimal of a system of numeration.

Determine r, when

The decimal conversion of (123)\_r` is 38.

**81.** r' is the decimal of a system of numeration.

Determine r, when

The decimal conversion of  $(124)_r$  is 52.

Watch Video Solution

## 82. r' is the decimal of a system of numeration.

Determine r, when

The decimal conversion of  $(144)_r$  is 100.

**83.** 2 and 3 are numerals of both the numerals systems whose base are x and x + 1. If the decimal conversion of  $(32)_x$  is y and that of  $(23)_{x+1}$  is y - 1, determine x and y.

Watch Video Solution

**84.** x is numeral of two numeral systems whose basis are p and p + 2. A is a two digit number consists x alone. If the decimal conversion of  $(A)_p$  is 10 and that of  $(A)_{p+2}$  is 14, then determine x and p.



**85.** 1 and 2 are the numerals of both numeral system whose basis are x and 2x + 1. If decimal conversion of  $(21)_x$  is y, then show that the decimal conversion of  $(21)_{2x+1}$  is 2y + 1.

Watch Video Solution

86. 2 and 3 are the numerals of both the numeral systems whose basis are x and x + 1.

If th decimal conversion of  $(23)_x$  is A then show that the decimal conversion of  $(23)_{x+1}$ is A+2.

Watch Video Solution

**87.** Express the following decimal and vulgar fraction in the numeral systems whose bases are indicated.

.3872 to the base five.



**88.** Express the following decimal and vulgar fraction in the numeral systems whose bases are indicated.

.5625 to the base six.

Watch Video Solution

89. Express the following decimal fraction in

the numeral systems whose bases are indicated.

.46875 to the base eight.

90. Express the following decimal and vulgar

fraction in the numeral systems whose bases

are indicated.

 $\frac{11}{15}$  to the base three.

> Watch Video Solution

**91.** Express the following decimal and vulgar

fraction in the numeral systems whose bases

are indicated.

```
\frac{11}{15} to the base three.
```



92. Express the following decimal and vulgar

fraction in the numeral systems whose bases are indicated.

 $\frac{3}{7}$  to the base three.

**93.** Express the following decimal and vulgar fraction in the numeral systems whose bases are indicated

 $\frac{32}{35}$  to the base seven.

Watch Video Solution

94. Express the following radix fractions whose

bases are indicated into the decimal system.

 $(.05343)_{six}$ .

**95.** Express the following radix fractions whose bases are indicated into the decimal system.

 $(.05343)_{six}$ .



96. Express the following numbers in the

numeral system whose bases are indicated.

213.3104 to the base five.

97. Express the following numbers in the

numeral system whose bases are indicated.

6233.21875 to the base eight.



# 98. Express the following numbers in the

numeral system whose bases are indicated.

$$1073 \frac{13}{16}$$
 to the base six.

99. Express the following numbers in the

numeral system whose bases are indicated.

$$981\frac{32}{125}$$
 to the base five.

Watch Video Solution

## 100. Express the following numbers into the

decimal system.

 $(434.3213)_{six}$ .

101. Express the following numbers into the

decimal system.

 $(716.16)_{eight}$ .