



# MATHS

## BOOKS - RD SHARMA MATHS (ENGLISH)

### RATIONAL NUMBERS

Others

1. Show that every natural number is a positive rational number.



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2. Show that Every negative integer is a negative rational number.



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3. Write down the numerator of each of the following rational numbers:

(a)  $-\frac{7}{5}$  (ii)  $\frac{15}{-4}$



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4. Write down the numerator of each of the following rational numbers:

(a)  $\frac{-17}{-21}$  (ii)  $\frac{8}{9}$



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5. Write down the denominator of each of the following rational numbers:

(a)  $\frac{-4}{5}$  (ii)  $\frac{11}{-34}$



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6. Write down the denominator of each of the following rational numbers:

(a)  $\frac{-15}{-82}$  (ii) 15



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7. Write down the rational number whose numerator is  $(-3) \times 4$ , and whose denominator is  $(34 - 23) \times (7 - 4)$ .



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8. Write the following rational numbers as

integers:  $\frac{7}{1}$ ,  $\frac{-12}{1}$ ,  $\frac{34}{1}$ ,  $\frac{-73}{1}$ ,  $\frac{95}{1}$



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9. Write the following integers as rational numbers with denominator 1:

$-15$ ,  $17$ ,  $85$ ,  $-100$



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**10.** Write down the rational number whose numerator is the smallest three digit number and denominator is the largest four digit number.



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**11.** Separate positive and negative rational numbers from the following rational numbers:

$$\frac{-5}{-7}, \frac{12}{-5}, \frac{7}{4}, \frac{13}{-9}, 0, \frac{-18}{-7}, \frac{-95}{116}, \frac{-1}{-9}$$



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**12.** Which of the following rational numbers

are positive: (i)  $-\frac{8}{7}$  (ii)  $\frac{9}{8}$



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**13.** Which of the following rational numbers

are positive: (i)  $-\frac{19}{-13}$  (ii)  $-\frac{21}{13}$



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**14.** Which of the following rational numbers

are negative? (i)  $\frac{-3}{7}$  (ii)  $\frac{-5}{-8}$



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**15.** Which of the following rational numbers

are negative? (i)  $\frac{9}{-83}$  (ii)  $\frac{-115}{-197}$



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**16.** Write each of the following rational numbers with positive denominator:

$$\frac{5}{-7}, \frac{15}{-28}, \frac{-17}{-13}$$



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**17.** Express  $\frac{-5}{6}$  as a rational number with numerator:

(i)  $-15$  (ii)  $10$



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**18.** Express  $\frac{-4}{5}$  as a rational number with denominator

(i) 20

(ii)  $-30$



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**19.** Express  $\frac{-48}{60}$  as a rational number with denominator 5.



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20. Express  $\frac{42}{-63}$  as a rational number with denominator 3.



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21. Fill in the blanks. (i)  $\frac{5}{-7} = \frac{\dot{\phantom{0}}}{35} = \frac{\dot{\phantom{0}}}{-77}$  (ii)

$$\frac{7}{13} = \frac{35}{\dot{\phantom{0}}} = \frac{-63}{\dot{\phantom{0}}}$$



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22. In each of the following, find an equivalent form of the rational numbers having a

common denominator (i)  $\frac{5}{6}$  and  $\frac{7}{9}$  (ii)

$$\frac{2}{3}, \frac{5}{6} \text{ and } \frac{7}{12}$$



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**23.** Express each of the following as a rational

number with positive denominator: (i)  $\frac{-15}{-28}$

(ii)  $\frac{6}{-9}$



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**24.** Express each of the following as a rational number with positive denominator:

(i)  $\frac{-28}{-11}$

(ii)  $\frac{19}{-7}$



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**25.** Express  $\frac{3}{5}$  as a rational number with numerator:

(i) 6

(ii) -15





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26. Express  $\frac{3}{5}$  as a rational number with  
numerator: (i) 21 (ii) -27



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27. Express  $\frac{5}{7}$  as a rational number with  
denominator: (i) -14 (ii) 70



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**28.** Express  $\frac{5}{7}$  as a rational number with denominator:  $-28$  (ii)  $-84$



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**29.** Express  $\frac{3}{4}$  as a rational number with denominator: (i)  $20$  (ii)  $36$



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**30.** Express  $\frac{3}{4}$  as a rational number with denominator:

(i) 44

(ii)  $-80$



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**31.** Express  $\frac{2}{5}$  as a rational number with numerator

(i)  $-56$  (ii)  $154$



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**32.** Express  $\frac{2}{5}$  as a rational number with numerator

(i)  $-750$

(ii)  $500$



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**33.** Express  $\frac{-192}{108}$  as a rational number with numerator: 32 (ii)  $-48$



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**34.** Express  $\frac{-192}{108}$  as a rational number with numerator: (i) 32 (ii)  $-48$



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**35.** Express  $\frac{168}{-294}$  as a rational number with denominator:

(i) 14

(ii)  $-7$



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**36.** Express  $\frac{168}{-294}$  as a rational number with denominator:

(i) 14

(ii)  $-7$



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**37.** Write  $\frac{-14}{42}$  in a form so that the numerator is equal to:

(i)  $-2$

(ii) 7



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**38.** Write  $\frac{-14}{42}$  in a form so that the numerator is equal to:

(i) 42

(ii)  $-70$



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**39.** Select those rational numbers which can be written as a rational numbers with numerator 6:  $\frac{1}{22}, \frac{2}{3}, \frac{3}{4}, \frac{4}{-5}, \frac{5}{6}, \frac{-6}{7}, \frac{-7}{8}$



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**40.** Select those rational numbers which can be written as a rational number with denominator 4:

$$\frac{7}{8}, \frac{64}{16}, \frac{36}{-12}, \frac{-16}{17}, \frac{5}{-4}, \frac{140}{28}$$



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**41.** In each of the following, find an equivalent form of the rational number having a common

denominator: (i)  $\frac{3}{4}$  and  $\frac{5}{12}$  (ii)  $\frac{2}{3}$ ,  $\frac{7}{6}$  and  $\frac{11}{12}$   
(iii)  $\frac{5}{7}$ ,  $\frac{3}{8}$ ,  $\frac{9}{14}$  and  $\frac{20}{21}$



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**42.** Find whether the following rational numbers are in the lowest form or not.

(i)  $\frac{17}{79}$

(ii)  $\frac{24}{320}$



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**43.** Express each of the following rational numbers to the lowest form.

(i)  $\frac{12}{16}$

(ii)  $\frac{-60}{72}$



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**44.** Express each of the following rational numbers to the lowest form.

(i)  $\frac{-24}{-36}$

(ii)  $\frac{91}{-364}$



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**45.** Fill in the blanks:  $\frac{90}{165} = \frac{-6}{.} = \frac{.}{-55}$

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**46.** Determine whether the following rational numbers are in the lowest form or not:

(i)  $\frac{65}{84}$

(ii)  $\frac{-15}{32}$

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**47.** Determine whether the following rational numbers are in the lowest form or not:

(i)  $\frac{24}{128}$

(ii)  $\frac{-56}{-32}$



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**48.** Express each of the following rational numbers to the lowest form:

(i)  $\frac{4}{22}$

(ii)  $\frac{-36}{180}$



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**49.** Express each of the following rational numbers to the lowest form:

(i)  $\frac{132}{-428}$

(ii)  $\frac{-32}{-56}$

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**50.** Fill in the blanks: (i)  $\frac{-5}{7} = \frac{\dot{-}}{35} = \frac{\dot{-}}{49}$  (ii)

$$\frac{-4}{-9} = \frac{\dot{-}}{18} = \frac{12}{\dot{-}}$$

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51. Fill in the blanks: (i)  $\frac{6}{-13} = \frac{-12}{.} = \frac{24}{.}$

(ii)  $\frac{-6}{.} = \frac{3}{11} = \frac{.}{-55}$



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52. Express each of the following rational numbers in the standard form:

(i)  $\frac{-8}{28}$

(ii)  $\frac{-12}{-30}$



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**53.** Express each of the following rational numbers in the standard form:

(i)  $\frac{14}{-49}$

(ii)  $\frac{-16}{-56}$



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**54.** Express each one of the following rational numbers in the standard form: (i)  $\frac{-247}{-228}$  (ii)

$\frac{299}{-161}$



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**55.** Write each of the following rational numbers in the standard form:

(i)  $\frac{2}{10}$

(ii)  $\frac{-8}{36}$



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**56.** Write each of the following rational numbers in the standard form:

$$(i) \frac{4}{-16}$$

$$(ii) \frac{-15}{-35}$$



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57. Write each of the following rational numbers in the standard form:  $\frac{299}{-161}$  (ii)

$$\frac{-63}{-210}$$



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**58.** Write each of the following rational numbers in the standard form:

(i)  $\frac{68}{-119}$

(ii)  $\frac{-195}{275}$



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**59.** Are the rational numbers  $\frac{8}{-12}$  and  $\frac{-50}{75}$  equal?



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**60.** Are the rational numbers  $\frac{-8}{28}$  and  $\frac{28}{-49}$  equal?



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**61.** Are the rational numbers  $\frac{-4}{6}$  and  $\frac{16}{-24}$  equal?



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**62.** Show that the rational numbers  $-\frac{15}{35}$  and  $\frac{4}{-6}$  are not equal.



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**63.** Which of the following rational numbers are equal?

(i)  $\frac{-7}{21}$  and  $\frac{3}{-9}$

(ii)  $\frac{-8}{-14}$  and  $\frac{13}{21}$



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64. If  $\frac{-5}{7} = \frac{x}{28}$ , find the value of x.



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65. Fill in the blank:  $\frac{-3}{8} = \frac{\cdot}{48}$



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66. Which of the following rational numbers are equal?

(i)  $\frac{-9}{12}$  and  $\frac{8}{-12}$

(ii)  $\frac{-16}{20}$  and  $\frac{20}{-25}$



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**67.** Which of the following rational numbers are equal?

(i)  $\frac{-7}{21}$  and  $\frac{3}{-9}$

(ii)  $\frac{-8}{-14}$  and  $\frac{13}{21}$



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**68.** If each of the following pairs represents a pair of equivalent rational numbers, find the values of  $x$ . (i)  $\frac{2}{3}$  and  $\frac{5}{x}$  (ii)  $\frac{-3}{7}$  and  $\frac{x}{4}$



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**69.** If each of the following pairs represents a pair of equivalent rational numbers, find the values of  $x$  (i)  $\frac{3}{5}$  and  $\frac{x}{-25}$  (ii)  $\frac{13}{6}$  and  $\frac{-65}{x}$



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**70.** In each of the following, fill in the blanks so as to make the statement true: A number which can be expressed in the form  $\frac{p}{q}$ , where  $p$  and  $q$  are integers and  $q$  is not equal to zero, is called a.... If the integers  $p$  and  $q$  have no common divisor other than 1 and  $q$  is positive, then the rational number  $\frac{p}{q}$  is said to be in the ... Two rational numbers are said to be equal, if they have the same ....form.



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71. In each of the following state if the statement is true (T) or false (F): (i) The quotient of two integers is always an integer. (ii) Every integer is a rational number. (iii) Every rational number is an integer. (iv) Every fraction is a rational number. (v) Every rational number is a fraction. (vi) If  $\frac{a}{b}$  is a rational number and  $m$  any integer, then  $\frac{a}{b} = \frac{a \times m}{b \times m}$  (vii) Two rational numbers with different numerators cannot be equal. (viii) 8 can be written as a rational number with any integer as denominator. (ix) 8 can be written as a

rational number with any integer as numerator. (x)  $\frac{2}{3}$  is equal to  $\frac{4}{6}$ .



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**72.** Represent  $\frac{5}{3}$  and  $\frac{-5}{3}$  on the number line.



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**73.** Represent  $\frac{8}{5}$  and  $\frac{-8}{5}$  on the number line.



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74. Which of the two rational numbers

$\frac{3}{5}$  and  $\frac{-2}{3}$  is greater?



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75. Which of the two rational numbers

$\frac{5}{7}$  and  $\frac{3}{5}$  is greater?



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**76.** Which of the two rational numbers

$\frac{-4}{9}$  and  $\frac{5}{-12}$  is greater?



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**77.** Arrange the rational numbers

$\frac{-7}{10}$ ,  $\frac{5}{-8}$ ,  $\frac{2}{-3}$  in ascending order:



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**78.** Arrange the following rational numbers in

descending order:  $\frac{4}{9}$ ,  $\frac{-5}{6}$ ,  $\frac{-7}{-12}$ ,  $\frac{11}{-24}$



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**79.** Draw the number line and represent the

following rational numbers on it: (i)  $\frac{2}{3}$  (ii)  $\frac{3}{4}$



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**80.** Draw the number line and represent the following rational numbers on it: (i)  $\frac{3}{8}$  (ii)  $-\frac{5}{8}$



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**81.** Draw the number line and represent the following rational numbers on it: (i)  $-\frac{3}{16}$  (ii)  $-\frac{7}{3}$



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**82.** Draw the number line and represent the following rational numbers on it: (i)  $\frac{22}{-7}$  (ii)  $\frac{-31}{3}$



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**83.** Which of the two rational numbers in each of the following pairs of rational numbers is greater?

(i)  $\frac{-3}{8}$ , 0

(ii)  $\frac{5}{2}$ , 0



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**84.** Which of the two rational numbers in each of the following pairs of rational numbers is greater?

(i)  $\frac{-4}{11}, \frac{3}{11}$

(ii)  $\frac{-7}{12}, \frac{5}{-8}$

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**85.** Which of the two rational numbers in each of the following pairs of rational numbers is

greater?

(i)  $\frac{4}{-9}, \frac{-3}{-7}$

(ii)  $\frac{-5}{8}, \frac{3}{-4}$



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**86.** Which of the two rational numbers in each of the following pairs of rational numbers is greater?

(i)  $\frac{5}{9}, \frac{-3}{-8}$

(ii)  $\frac{5}{-8}, \frac{-7}{12}$



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**87.** Which of the two rational numbers in each of the following pairs of rational numbers is smaller?

(i)  $\frac{-6}{-13}, \frac{7}{13}$

(ii)  $\frac{16}{-5}, 3$



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**88.** Which of the two rational numbers in each of the following pairs of rational numbers is smaller?

(i)  $\frac{-4}{3}, \frac{8}{-7}$

(ii)  $\frac{-12}{5}, -3$



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**89.** Fill in the blanks by the correct symbol out

of  $>$  ,  $=$  , or  $<$  :

(i)  $\frac{-6}{7} \dots \frac{7}{13}$

(ii)  $\frac{-3}{5} \dots \frac{-5}{6}$



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**90.** Fill in the blanks by the correct symbol out

of  $>$  ,  $=$  , or  $<$  : (i)  $\frac{-2}{3}$  .....  $\frac{5}{-8}$

(ii) 0 .....  $\frac{-2}{5}$



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**91.** Arrange the following rational numbers in

ascending order: (i)  $\frac{3}{5}$ ,  $\frac{-17}{-30}$ ,  $\frac{8}{-15}$ ,  $\frac{-7}{10}$  (ii)

$\frac{-4}{9}$ ,  $\frac{5}{-12}$ ,  $\frac{7}{-18}$ ,  $\frac{2}{-3}$



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**92.** Arrange the following rational numbers in descending order:

(i)  $\frac{7}{8}, \frac{64}{16}, \frac{36}{-12}, \frac{5}{-4}, \frac{140}{28}$  (ii)

$\frac{-3}{10}, \frac{17}{-30}, \frac{7}{-15}, \frac{-11}{20}$



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**93.** Which of the following statements are true: (i) The rational number  $\frac{29}{23}$  lies to the left of zero on the number line. (ii) The rational number  $\frac{-12}{-17}$  lies to the left of zero on the number line. (iii) The rational number

$\frac{3}{4}$  lies to the right of zero on the number line.

(iv) The rational numbers  $\frac{-12}{-5}$  and  $\frac{-7}{17}$  are

on the opposite side of zero on the number

line. (v) The rational numbers  $\frac{-21}{5}$  and  $\frac{7}{-31}$

are on the opposite side of zero on the

number line. (vi) The rational number  $\frac{-3}{-5}$  is

on the right of  $\frac{-4}{7}$  on the number line.



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**94.**  $\frac{44}{-77}$  in standard form is

(a)  $\frac{4}{-7}$

(b)  $-\frac{4}{7}$

(c)  $-\frac{44}{77}$

(d) None of these



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95.  $\frac{-102}{119}$  in standard form is

(a)  $-\frac{6}{7}$

(b)  $\frac{6}{7}$

(c)  $-\frac{6}{17}$

(d) None of these



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**96.** A rational number equal to  $\frac{-2}{3}$  is

(a)  $\frac{-10}{25}$

(b)  $\frac{10}{-15}$

(c)  $\frac{-9}{6}$

(d) None of these



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**97.** If  $\frac{-3}{7} = \frac{x}{35}$ , then  $x =$

(a) 15

(b) 21

(c)  $-15$

(d)  $-21$



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**98.** Which of the following is correct? (a)

$\frac{5}{9} > \frac{-3}{-8}$  (b)  $\frac{5}{9} < \frac{-3}{-8}$  (c)  $\frac{2}{-3} < \frac{-8}{7}$  (d)

$\frac{4}{-3} > \frac{-8}{7}$



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**99.** If the rational numbers  $-\frac{2}{3}$  and  $\frac{4}{x}$  represent a pair of equivalent rational numbers, then  $x =$

(a) 6

(b)  $-6$

(c) 3

(d)  $-3$



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**100.** What is the additive identity element in the set of whole numbers? 0 (b)  $-1$  (c) 1 (d) None of these



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**101.** What is the multiplicative identity element in the set of whole numbers? 0 (b)  $-1$  (c) 1 (d) None of these



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**102.** Which of the following is not zero?

(a)  $0 \times 0$

(b)  $\frac{0}{2}$

(c)  $\frac{(6 - 6)}{2}$

(d)  $4 + 0$



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**103.** The whole number nearest to 457 and divisible by 11 is

(a) 450

(b) 451

(c) 460

(d) 462



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**104.** If  $-\frac{3}{8}$  and  $\frac{x}{-24}$  are equivalent rational numbers, then  $x =$

(a) 3

(b) 6

(c) 9

(d) 12



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**105.** If  $\frac{27}{-45}$  is expressed as a rational number with denominator 5, then the numerator is

- (a) 3
- (b)  $-3$
- (c) 6
- (d)  $-6$



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**106.** Which of the following pairs of rational numbers are on the opposite sides of the zero

on the number line? (a)  $\frac{3}{7}$  and  $\frac{5}{12}$  (b)  $-\frac{3}{7}$  and  $-\frac{5}{12}$  (c)  $\frac{3}{7}$  and  $-\frac{5}{12}$  (d) None of these



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**107.** The rational number equal to  $\frac{2}{-3}$  is

(a)  $\frac{17}{-18}$

(b)  $\frac{-6}{9}$

(c)  $\frac{-8}{-12}$

(d)  $\frac{3}{-2}$



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**108.** If  $-\frac{3}{4} = \frac{6}{x}$ , then  $x =$

(a)  $-8$

(b)  $4$

(c)  $-4$

(d)  $8$



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