

## FRACTIONS - EXERCISES AND PROBLEMS

1) Express each of the following fractions in its lowest terms:

a)  $\frac{5}{10}$

b)  $\frac{3}{12}$

c)  $\frac{21}{30}$

d)  $\frac{30}{45}$

2) Find the missing number in each of these equivalent fractions:

a)  $\frac{1}{4} = \frac{x}{8}$

b)  $\frac{10}{15} = \frac{2}{x}$

c)  $\frac{10}{5} = \frac{x}{3}$

d)  $\frac{9}{x} = \frac{x}{4}$

e)  $\frac{x}{24} = \frac{3}{4} = \frac{6}{y}$

3) Which of the three fractions  $\frac{4}{18}$ ,  $\frac{5}{20}$  and  $\frac{6}{27}$  are equivalent?

4) Pam got 10 out of 15 right answers for her test, and Tom got 15 out of 20 in his test. Kate says that they both did equally well because they both got five questions wrong. Is Kate correct? Justify your answer.

5) Express each of the following mixed numbers as an improper fraction:

a)  $2\frac{1}{4}$

b)  $2\frac{3}{5}$

c)  $4\frac{3}{4}$

d)  $3\frac{5}{7}$

6) Express each of the following improper fractions as a mixed number:

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

b)  $\frac{13}{6}$

c)  $\frac{25}{4}$

d)  $\frac{11}{3}$

7) Write the following fractions in order of size, starting with the smallest:

a)  $\frac{7}{10}, \frac{3}{5}$

b)  $\frac{1}{2}, \frac{3}{4}, \frac{5}{8}$

c)  $\frac{6}{5}, \frac{3}{4}, \frac{11}{8}, \frac{5}{3}, 1$

8) Which of the fractions  $\frac{4}{5}$ ,  $\frac{19}{20}$ ,  $\frac{7}{10}$ ,  $\frac{1}{4}$  lies between  $\frac{1}{2}$  and  $\frac{3}{4}$ ? Justify your answer.

9) Ann, Bren and Liam are the only candidates in a school election. Ann got  $\frac{7}{20}$  of the votes and Bren got  $\frac{2}{5}$  of the votes.

a) What fraction of the votes did Liam get?

b) Which candidate won the election?

10) Which is larger,  $\frac{4}{5}$  of  $4\frac{1}{8}$  or  $\frac{2}{5}$  of  $8\frac{1}{2}$

- 11) In one phase of a cycling race, a cyclist has covered three fifths of the total distance. If there are still thirty km left, what's the total distance of the race?
- 12) There are twenty four hours in a day and scientists tell us that we should sleep at least for three over eight of the day. How much time should we spend sleeping?
- 13) There are twenty five students in a class. Two fifths of the students support Sevilla and the remaining support Betis. How many students support Betis?
- 14) The local shop normally sells donuts for fifty cents, but now there's an offer and I can buy them for one fourth less than their normal price. How much will a donut cost now?
- 15) McDonalds sell milkshakes in two sizes. A small milkshake contains 300ml and a large milkshake contains two thirds more:
  - a) How much does a large milkshake contain?
  - b) If Mr. Smith drinks two thirds of a small milkshake and Miss Holly drinks one half of a large milkshake, who drinks the most?
- 16) A tank of petrol was full, but three over ten of it was used this morning and another two fifths this afternoon. What fraction of the tank remains full?
- 17) Roberto planted one quarter of his garden with tomatoes and one sixth with beans. What fraction of the garden remains unplanted?
- 18) Last week Martha read two fifths of an adventure book and this week she has read another one quarter. If she still has one hundred and forty pages to read, how many pages has the book got?
- 19) Yesterday a gardener watered one third of his field and today he watered half of the remaining land. What is the total fraction of land watered?
- 20) In a magic square each row, each column and each diagonal add up to the same number. Complete this magic square:

$\frac{2}{3}$		
$\frac{1}{4}$	$\frac{1}{3}$	$\frac{5}{12}$

- 21) Each lap of a race is  $2\frac{3}{5}$  km long. What is the total length of an eight laps race?
- 22) A bottle is filled with  $\frac{2}{3}$  of apple juice. Brenda drinks  $\frac{4}{5}$  of it.  
a) What fraction of apple juice does Brenda drink?  
b) What fraction of apple juice is left in the bottle?
- 23) Jack eats  $\frac{1}{5}$  of a bag of sweets. He shares the remaining sweets equally among Tom, Paul and Lisa. What fraction of the bag of sweets does Lisa get?
- 24) Sean has invited seventeen friends to a party in his house. He has ordered twelve pizzas and has decided that he and his friends are getting  $\frac{2}{3}$  of a pizza each. Has he ordered enough pizzas?
- 25) How many  $2\frac{1}{4}$  cm lengths of wire can be cut from a roll  $49\frac{1}{2}$  cm in length?
- 26) A bag of sugar weighs one kg. Pat uses one quarter of the bag to make some biscuits and Lisa uses two thirds of the remaining sugar to make a cake.  
a) How many grams of sugar are left?  
b) What fraction of the sugar did Lisa use?
- 27) John spent three quarters of his pocket money and now he has ten euros left. How much money did he have?
- 28) In a club, three fifths of the members are girls. The remaining one hundred and eighty members are boys. How many members are there in the club?
- 29) A ball is dropped onto a hard surface. Every time it bounces, it rebounds to exactly four fifths of the height from which it fell. After the first bounce, the ball rises to a height of sixty cm. from what height was it originally dropped?
- 30) Sam rode his bike two sixths of a mile and walked for another three fourths of a mile. How far did he travel?
- 31) An equilateral triangle measures  $3\frac{1}{2}$  inches on one side. What's its perimeter?

- 32) I have eaten three fifths of a cake, and my brother one quarter of what was left.
- a) There are still 200g of the cake. What was its total weight?
  - b) My neighbour came in to visit and we offered him three quarters of the remaining cake. What fraction did he get? What fraction have we all eaten in total?
- 33) Two work groups are formed in a class of students. The first group is formed by one quarter of the class, and the second group by two fifths. The remaining seven students choose to do individual work.
- a) How many students are there in the class?
  - b) How many students are in each group?
- 34) Spain consumes two hundred and fifty liters of water per person per day. Three over twenty of the total is consumed at homes, and two fifths of this is used in the bathroom. How much water is used in a bathroom by a family formed by three people?
- 35) We have planted some fruit trees on an orchard. Three fifths are cherries, one third apples and one over fifteen pears. Among the cherries and apples we have one hundred and forty trees. How many pear trees are there?