Tutorial 4

1. Work out the following without the use of a calculator. Express your answer in its simplest form where necessary. (Revision)

(a) $\frac{3}{8} + \frac{4}{5}$ =	(b) $\frac{5}{6} + \frac{7}{10}$ =
(c) $\frac{2}{3} - \frac{1}{7}$ =	(d) $\frac{4}{9} - \frac{5}{12}$ =
(e) $5\frac{1}{5} - 1\frac{1}{4}$ =	(f) $3\frac{2}{3} - 1\frac{5}{9}$ =
(g) $\frac{1}{6} + \frac{4}{5} - \frac{2}{3}$ =	(h) $\frac{3}{4} - \frac{1}{2} + \frac{1}{9}$ =
(i) $2\frac{1}{3} - \frac{5}{8} + \frac{1}{6}$ =	(j) $3\frac{1}{2} + 2\frac{1}{4} - \frac{5}{6}$ =

Answer

Question 1

a) $\frac{17}{40}$

b) $1\frac{8}{15}$

c) $\frac{11}{21}$

d) $\frac{1}{36}$

e) $3\frac{19}{20}$

f) $2\frac{1}{9}$

g) $\frac{3}{10}$

h) $\frac{13}{36}$

i) $1\frac{7}{8}$

j) $4\frac{11}{12}$

(k) $\frac{5}{8} \times 40$ =	(l) $\frac{1}{12} \times \frac{4}{5}$ =
(m) $\frac{9}{10} \times \frac{2}{3}$ =	(n) $\frac{4}{9} \times \frac{15}{8}$ =
(o) $\frac{21}{5} \times \frac{15}{14}$ =	(p) $\frac{10}{3} \times \frac{7}{4}$ =
(q) $3\frac{1}{3} \times 6$ =	(r) $2\frac{3}{4} \times 10$ =
(s) $2\frac{2}{9} \times 18$ =	(t) $\frac{5}{12} \div 3$ =
(u) $\frac{8}{11} \div 4$ =	(v) $\frac{3}{7} \div 6$ =

Answer

Question 1

k) 25

l) $\frac{1}{15}$

m) $\frac{3}{5}$

n) $\frac{5}{6}$

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

p) $5\frac{5}{6}$

q) 20

r) $27\frac{1}{2}$

s) 40

t) $\frac{5}{36}$

u) $\frac{2}{11}$

2. Divide without the use of a calculator. Express your answer in its simplest form where necessary.

(a) $2 \div \frac{1}{3}$ =	(b) $1 \div \frac{1}{4}$ =
(c) $10 \div \frac{1}{5}$ =	(d) $2 \div \frac{2}{7}$ =
(e) $3 \div \frac{3}{11}$ =	(f) $6 \div \frac{4}{5}$ =
(g) $18 \div \frac{2}{5}$ =	(h) $10 \div \frac{5}{8}$ =
(i) $12 \div \frac{10}{11}$ =	(j) $8 \div \frac{3}{4}$ =
(k) $15 \div \frac{3}{5}$ =	(l) $16 \div \frac{6}{7}$ =
(m) $18 \div \frac{8}{9}$ =	(n) $20 \div \frac{5}{8}$ =

Answer

Question 2

a) 6

b) 4

c) 50

d) 7

e) 11

f) $7\frac{1}{2}$

g) 45

h) 16

i) $13\frac{1}{5}$

j) $10\frac{2}{3}$

k) 25

l) $18\frac{2}{3}$

m) $20\frac{1}{4}$

n) 32

3. Divide without the use of a calculator. Express your answer in its simplest form where necessary.

(a) $\frac{1}{2} \div \frac{1}{3}$ =	(b) $\frac{1}{5} \div \frac{1}{10}$ =
(c) $\frac{1}{6} \div \frac{1}{8}$ =	(d) $\frac{8}{9} \div \frac{1}{9}$ =
(e) $\frac{3}{4} \div \frac{1}{12}$ =	(f) $\frac{3}{8} \div \frac{1}{10}$ =
(g) $\frac{3}{5} \div \frac{1}{15}$ =	(h) $\frac{1}{6} \div \frac{10}{11}$ =
(i) $\frac{1}{4} \div \frac{7}{10}$ =	(j) $\frac{2}{5} \div \frac{5}{6}$ =
(k) $\frac{2}{3} \div \frac{5}{9}$ =	(l) $\frac{5}{8} \div \frac{7}{12}$ =
(m) $\frac{2}{5} \div \frac{8}{15}$ =	(n) $\frac{7}{18} \div \frac{14}{15}$ =

Answer

Question 3

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

b) 2

c) $1\frac{1}{3}$

d) 8

e) 9

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

g) 9

h) $\frac{11}{60}$

i) $\frac{5}{14}$

j) $\frac{12}{25}$

k) $1\frac{1}{5}$

l) $1\frac{1}{14}$

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

n) $\frac{5}{12}$

Solve the following word problems. (Division of Fractions)

4. A string was 3 m long. Janet cut it into pieces of length $\frac{1}{9}$ m long each. How many pieces did she get? (27 pieces)

Ans: _____ pieces

5. A shopkeeper packed 12 kg of sugar into packets of $\frac{3}{4}$ kg each. How many packets did he get? (16 packets)

Ans: _____ packets

6. A teacher bought 9 packets of lollipops for her students. Each student received $\frac{3}{8}$ of a packet. How many students were there? (24 students)

Ans: _____ students

7. A bottle contained $\frac{3}{5}$ l of pineapple juice. Mrs Teo poured the juice into a few cups. The capacity of each cup was $\frac{1}{10}$ l. How many cups of juice did she get? (6 cups)

Ans: _____ cups

8. Cindy had $\frac{5}{6}$ of a cake left. She cut it into a number of pieces. Each piece was $\frac{1}{12}$ of the whole cake. How many pieces will she get?

(10 pieces)

Ans: _____ pieces

9. Mrs Lim bought $\frac{9}{10}$ of a pie. She cut it into a number of pieces. Each piece was $\frac{3}{20}$ of the whole pie. How many pieces will she get?

(6 pieces)

Ans: _____ pieces

10. A roll of string is 6 m long. It is cut into pieces of length $\frac{4}{5}$ m long.

(a) How many pieces of string of length $\frac{4}{5}$ m can be obtained?

(b) What is the length of the remaining string?

a) 7 pieces

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

Ans: (a) _____ pieces

(b) _____ m

11. A shopkeeper bought $\frac{11}{12}$ kg of anchovies. He packed them into packets containing $\frac{2}{15}$ kg of anchovies.

(a) How many packets of anchovies did he get?
(b) Find the mass of anchovies he had left.

a) 6 packets
b) $\frac{7}{60}$ kg

Ans: (a) _____ packets

(b) _____ kg

12. A shopkeeper bought 24 kg of flour. He sold $\frac{3}{8}$ of it and packed the remaining flour into smaller packets of $\frac{4}{5}$ kg each. How much flour was left unpacked?

($\frac{3}{5}$ kg)

Ans: _____ kg

13. $\frac{5}{6}$ of a square was coloured green. Francis cut $\frac{1}{3}$ of the green part into a number of pieces. Each piece was $\frac{2}{15}$ of the whole square. Find the maximum number of pieces he got.

($2\ pieces$)

Ans: _____ pieces

14. A pipe was 8 m long. It was cut into 12 pieces of length $\frac{2}{5}$ m each. The remaining pipe was cut into some pieces of length $\frac{9}{20}$ m each. Find the length of the pipe left.

($\frac{1}{20}$ m)

Ans: _____ m

15. The mass of a sack of onions was 12 kg. It was packed into 10 small and some large packets. The mass of each small packet was $\frac{2}{5}$ kg and the mass of each large packet was $\frac{6}{7}$ kg.

(a) How many large packets were there?
(b) Find the mass of the remaining onions.

a) 9 large packets
b) $\frac{2}{7}$ kg

Ans: (a) _____ large packets

(b) _____ kg

4.2

Solve the following word problems (Four Operations of Fractions)

16. A glass is $\frac{1}{5}$ full of tea. The tea is poured into an empty flask which has a capacity 3 times that of the glass. Find the fraction of the flask that is filled with tea. ($\frac{1}{15}$)

Ans: _____

17. Jim bought a pizza. He ate $\frac{1}{3}$ of it and cut the rest into 5 equal pieces. He gave 2 pieces to Anna and the rest to Bob. What fraction of the pizza did Bob receive? ($\frac{2}{5}$)

Ans: _____

18. A jug was $\frac{7}{8}$ filled with water. Marc poured $\frac{2}{3}$ of the water into 7 cups. What fraction of the jug was the water in each cup? ($\frac{1}{12}$)

Ans: _____

19. Paul spent $\frac{1}{6}$ of his money and shared the rest equally among his 2 brothers. What fraction of Paul's money did each of his brothers receive? ($\frac{5}{18}$)

Ans: _____

20. Ryan spent $\frac{1}{3}$ of his salary, saved $\frac{4}{9}$ of it and gave the rest to his children. Each child received $\frac{1}{18}$ of his salary. How many children did he have? (4 children)

Ans: _____ children

21. Rachel spent $\frac{2}{9}$ of her money on a camera. She gave $60 to her brother and had $\frac{1}{3}$ of the original amount left. How much did she have at first? ($135)

Ans: $_____

22. Nadia bought $2\frac{1}{4}$ kg of longans. She ate $\frac{1}{3}$ kg of the longans and gave $\frac{1}{5}$ of the remainder to her brother. How many kilograms of longans did she have left?

($1\frac{8}{15}\ kg$)

Ans: _____ kg

23. $\frac{3}{5}$ of Diana's height is $\frac{3}{7}$ of Charlie's height. If Diana is 80 cm tall, find their total height. ($192\ cm$)

Ans: _____ cm

24. Bryan bought a packet of sweets. He ate $\frac{2}{7}$ of them and gave $\frac{1}{3}$ of the remainder to Tom. If he had 20 sweets left, how many sweets did he buy? (42 *sweets*)

Ans: _____ sweets

25. A jug was $\frac{3}{5}$ filled with juice. After 56 cm^3 more juice was poured into the jug, it became $\frac{5}{6}$ full. Find the capacity of the jug. (240 cm^3)

Ans: _____ cm^3

26. Tom and Jerry work in a factory assembling toys. For every $\frac{1}{2}$ of a toy Tom assembles, Jerry assembles $\frac{1}{4}$ of it. What fraction of the toy will Jerry assemble if Tom assembles $\frac{1}{5}$ of it? ($\frac{1}{10}$)

Ans: _____

27. George had $\frac{3}{5}$ as many cookies as Helen. After Helen ate 15 of her cookies, she had $\frac{5}{6}$ as many cookies as George. How many cookies did George have?

(18 cookies)

Ans: _____ cookies

28. A fruit stall had some red and green apples. $\frac{2}{3}$ of the red apples was equal to $\frac{3}{4}$ of the green apples. If there were 340 apples altogether, how many red apples were there?

(180 red apples)

Ans: _____ red apples

29. $\frac{8}{9}$ of the students who sat for a mathematics test passed. Of those who passed, 54 were girls and the remaining $\frac{3}{4}$ were boys. How many students sat for the test?

243 students

Ans: _____ students

30. Lisa had some stickers. She gave $\frac{1}{6}$ of the stickers to Ben and $\frac{4}{5}$ of the remainder to Mary. If she gave 35 stickers to Ben, how many stickers did she give to Mary?

(140 stickers)

Ans: _____ stickers

31. There were the same number of boys and girls in a class. $\frac{3}{4}$ of the boys and $\frac{1}{3}$ of the girls wore spectacles. What fraction of the students did not wear spectacles?

$(\frac{11}{24})$

Ans: _____

4.3

Solve the following word problems.

32. $\frac{4}{7}$ of a square is painted green. $\frac{5}{6}$ of the remainder is painted red. If the green part is 36 cm^2 more than the red part, find the area of the square.

(168 cm^2)

Ans: _____

33. There were 95 pears and oranges in a basket. $\frac{1}{5}$ of the pears was 8 more than $\frac{1}{6}$ of the oranges. How many more pears than oranges were there in the basket?

(35 more)

Ans: _____

34. Fiona spent $\frac{5}{8}$ of her money on a storybook and $\frac{2}{3}$ of the remainder on 6 files. How many files can she buy with the money she spent on the storybook?

(15 files)

Ans: _____

35. A tailor had some buttons. He sewed $\frac{1}{6}$ of them on a batch of uniforms and $\frac{1}{9}$ of the remaining buttons on some dresses. After buying 84 more buttons, he had as many buttons as he had at first. How many buttons did he have at first?

(324 buttons)

Ans: _____

36. $\frac{2}{5}$ of the people in a stadium are men, $\frac{1}{5}$ of the remaining people are women and the rest are children. The number of boys is twice the number of girls. If there are 220 girls in the stadium, find the number of women in the stadium.

(165 women)

Ans: _____

37. Jack bought some marbles. $\frac{1}{3}$ of the marbles were green and the rest were yellow. He gave $\frac{1}{4}$ of the green marbles and $\frac{3}{4}$ of the yellow marbles to his brother. He had 50 marbles left. How many marbles did Jack buy?

(120 marbles)

Ans: _____

38. There were $\frac{3}{4}$ as many men as women at an exhibition. After 25 men left the exhibition, there were 95 more women than men remaining at the exhibition. How many men were there at the exhibition at first?

(120 men)

Ans: _____

39. Gina had $\frac{5}{6}$ as many stamps as Joey. After Gina bought another 18 stamps, she had 22 fewer stamps than Joey. How many stamps did Gina have at first?

(200 stamps)

Ans: _____

40. May had $\frac{5}{9}$ as much money as Jenny. If Jenny gives $72 to May, both will have the same amount of money. How much did May have at first? ($180)

Ans: _____

41. Jason spent $234 on some kites and flags. Each flag cost $1\frac{1}{2}$ times as much as each kite. He sold 3 flags and 2 kites. If the value of the kites and flags he had left was $\frac{4}{9}$ of the original amount he spent, find the cost of each kite. ($20)

Ans: _____

42. Sandra had $\frac{3}{5}$ as much money as Tina. After Sandra gave half of her money to Tina, Tina had $80 more than Sandra. How much did Tina have in the end? (Ans: $104)

Ans: _____

43. Marc and Ben had 87 marbles altogether. Ben and Jim had 111 marbles altogether. If Marc had $\frac{2}{5}$ of the marbles Jim had, how many marbles did Ben have? (Ans: 71 marbles)

Ans: _____