Name:

Exam Style Questions

Fractions: Finding Original

Corbettmaths

Equipment needed: Calculator, pen

Guidance

1. Read each question carefully before you begin answering it.
2. Check your answers seem right.
3. Always show your workings

Video Tutorial

www.corbettmaths.com/contents

Video 138

Answers and Video Solutions

1. $\frac{1}{3}$ of a number is 5

   Work out the number.

   $5 \times 3 = 15$

   _15_ **(1)**

2. I am thinking of a number.
   Three-quarters of the number is 12

   What is the number?

   $12 \div 3 = 4$
   $4 \times 4 = 16$

   _16_ **(2)**

3. $\frac{4}{5}$ of y is 20

   Find y

   $20 \div 4 = 5$
   $5 \times 5 = 25$

   _25_ **(2)**

4. $\frac{3}{7}$ of a number is 24

   Find the number.

   $24 \div 3 = 8$
   $8 \times 7 = 56$

   _56_ **(2)**
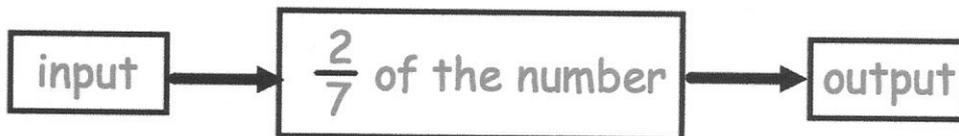
5. $\frac{1}{25}$ of the cars in a car park are yellow.

There are 13 yellow cars in the car park.

Work out the total number of cars parked in the car park.

$13 \times 25 = 325$

325

(2)

6.

(a) Work out the output if the input is 28.

$28 \div 7 = 4$
$4 \times 2 = 8$

8

(2)

(b) Work out the input if the output is 14

$14 \div 2 = 7$
$7 \times 7 = 49$

49

(2)

7. $\frac{13}{16}$ of a number is 7832.5

Calculate the number.

$7832.5 \div 13 = 602.5$
$602.5 \times 16 = 9640$

9640

(2)

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8. There are red sweets and yellow sweets in a bag.

$\frac{5}{6}$ of the sweets are yellow.

There are 20 yellow sweets in the bag.

Work out how many sweets in total are in the bag.

$$20 \div 5 = 4$$
$$4 \times 6 = 24$$

24 ....

(2)

9. Gavin wins some money in a raffle.

Gavin gives $\frac{2}{3}$ of the money to charity.

He saves the rest of the money.

Gavin gives £240 to charity.

How much money does Gavin save?

$$240 \div 2 = 120$$
$$120 \times 3 = 360$$

$$360 - 240 = 120$$

£120 ....

(2)

10. I'm thinking of a number

$\frac{1}{3}$ of the number is 6.

Work out $\frac{1}{2}$ of the number.

$6 \times 3 = 18$

$18 \div 2 = 9$

9

....

(2)

11. Ranjit is thinking of a number

$\frac{3}{4}$ of the number is 360

Work out $\frac{2}{5}$ of the number.

$360 \div 3 = 120$

$120 \times 4 = 480$

$\begin{array}{r} 096 \\ 5\overline{)480} \end{array}$

$480 \div 5 = 96$

$96 \times 2 = 192$

192

....

(3)

12. Jessica made lemon cupcakes and chocolate cupcakes for a party.

$\frac{3}{7}$ of the cupcakes are lemon.

She made 52 chocolate cupcakes.

Work out how many cupcakes Jessica made in total.

$1 - \frac{3}{7} = \frac{4}{7}$

$52 \div 4 = 13$

$13 \times 7 = 91$

91

....

(3)

13. In a sale, a shop reduces all prices by $\frac{1}{6}$

Ibrahim bought a hat for £35

Work out the original price of the hat.

$\downarrow y$

$\frac{5}{6}$ of $y = 35$

$35 \div 5 = 7$

$7 \times 6 = £42$

£42

....

(2)

14. A water bottle is three eighths full.

Kody pours 400ml of water into the bottle.
The bottle is now full.

Work out how much water the bottle holds.

$$1 - \frac{3}{8} = \frac{5}{8}$$

$$400 \div 5 = 80$$
$$80 \times 8 = 640$$

640ml
....
(3)

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15. I'm thinking of a number
A two-fifths of a number is 20.

Work out $2\frac{1}{2}$ times the number.

$$20 \div 2 = 10$$
$$10 \times 5 = 50$$

$$2 \times 50 = 100$$
$$\frac{1}{2} \times 50 = 25$$

$$2\frac{1}{2} \times 50 = 125$$

125
....
(3)

16. The students in Year 10 and Year 11 are asked to complete a survey.
There are 180 students in Year 10.

$\dfrac{3}{10}$ of the students in Year 10 complete the survey.

$\dfrac{2}{9}$ of the students in Year 11 complete the survey.

The same number of students in both year groups completed the survey.   *54 each*

Work out how many students there are in Year 11.

$$180 \div 10 = 18$$
$$18 \times 3 = 54$$

$$54 \div 2 = 27$$
$$27 \times 9 = 243$$

243
....
(5)

17. Alison is selling homemade Christmas decorations.
She has 300 decorations that cost £2 each to make.

Alison sells 250 decorations for the full price.

She then reduces the price of each decorations by $\frac{1}{3}$

Alison sells the remaining decorations for £6 each.

Work out how much profit Alison makes.

$1 - \frac{1}{3} = \frac{2}{3}$

$300 \times £2 = £600$

250 full price

50 reduced price

↓

y

↓

$50 \times 6 = £300$

$\frac{2}{3}$ of y = £6

$6 \div 2 = 3$

$3 \times 3 = 9$

$250 \times 9 = £2250$

2250

+ 300

£2550

$£2550 - £600 = £1950$

£1950
....
(5)

18. Rebecca bought a bag of flour.

She used $\frac{1}{10}$ of the flour to make some pancakes and $\frac{1}{4}$ of the flour to make

some scones.

There is 780g of flour left in the bag.

Work out how much flour is in a full bag.

$$\frac{1}{10} + \frac{1}{4} = \frac{7}{20} \quad \text{used}$$

$$1 - \frac{7}{20} = \frac{13}{20} \quad \text{left}$$

$$780 \div 13 = 60$$

$$60 \times 20 = 1200 \text{ g}$$

1.2 kg

(5)

19. Barnaby has a bag of yellow, green and pink counters.

$\frac{2}{5}$ of the counters are yellow

$\frac{1}{3}$ of the counters are green.

There are 48 pink counters in the bag.

Work out how many green counters are in the bag.

$\frac{2}{5} + \frac{1}{3}$

$\frac{6}{15} + \frac{5}{15} = \frac{11}{15}$ (yellow & green)

$1 - \frac{11}{15} = \frac{4}{15}$ (pink)

$48 \div 4 = 12$

$15 \times 12 = 180$ total

$180 \div 3 = 60$

60

(5)

20. At 14:00 a stadium is a $\frac{1}{6}$ ~~sixth~~ full of fans.

By 15:00 an additional 6500 fans have entered the stadium.
The stadium is now $\frac{3}{5}$ ~~three fifths~~ full.

Work out the total capacity of the stadium.

$$\frac{3}{5} - \frac{1}{6} = \frac{13}{30}$$

$$\frac{13}{30} \text{ of } y = 6500$$

$$6500 \div 13 = 500$$

$$500 \times 30 = 15000$$

15000

....

(5)

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21. Two flights leave an airport, one flying to Edinburgh and the other to Liverpool.
    There are 20 more passengers on the flight to Edinburgh than the flight to Liverpool.

    less

    On the flight to Edinburgh, $\frac{3}{4}$ of the passengers check-in a hold bag.

    On the flight to Liverpool, $\frac{5}{8}$ of the passengers check-in a hold bag.

    The same number of passengers on each flight check-in a hold bag.

    Work out how many passengers in total checked in a hold bag.

    Let the number of passengers on Liverpool flight be y.

    Edinburgh $y + 20$

    $$\frac{3}{4}(y + 20) = \frac{5}{8}(y)$$

    $$\frac{3}{4}y + 15 = \frac{5}{8}y$$

    $$-\frac{5}{8}y \qquad\qquad -\frac{5}{8}y$$

    $$\frac{1}{8}y - 15 = 0$$

    $$\frac{1}{8}y = 15$$

    $\times 8 \qquad\qquad \times 8$

    $$y = 120$$

    Liverpool 120 passengers $\quad \frac{5}{8} \rightarrow$ ~~100~~ 75

    Edinburgh 100 passengers $\quad \frac{3}{4} \rightarrow$ 75

    150

    (5)

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