



Mini Test 21: Number

1. Which set of fractions is arranged from lowest to highest?
A $\frac{3}{5}, \frac{5}{8}, \frac{7}{10}, \frac{13}{20}$ B $\frac{3}{5}, \frac{5}{8}, \frac{13}{20}, \frac{7}{10}$
C $\frac{13}{20}, \frac{7}{10}, \frac{5}{8}, \frac{3}{5}$ D $\frac{5}{8}, \frac{13}{20}, \frac{3}{5}, \frac{7}{10}$
2. Which has the same value as 9^4 ?
A 4^9 B 6^3 C 3^6 D 3^8
3. 30% of the competitors representing a club received a medal. Of these, 20% received a gold medal. What percentage of the club's competitors received a gold medal? %
4. Which is not equal to 0.32?
A 0.4×0.8 B $0.12 + 0.2$
C $6.4 \div 0.2$ D $1 - 0.68$
5. Which has the largest value?
A $\frac{1}{8}$ B 0.16 C 8% D $\frac{1}{9}$
6. What is the value of $(0.3)^2$?
A 0.09 B 0.9 C 0.6 D 0.33
7. There were 28 students in a class. The ratio of boys to girls was 5 to 2. Two more girls joined the class. What is the new ratio of boys to girls?
A 5:2 B 5:4 C 3:2 D 2:1
8. The price of a television was \$600. During a sale this price was reduced by 10%. Which calculation gives the sale price?
A $600 - 10$ B $600 - 0.1$
C 600×0.1 D 600×0.9
9. Which two numbers multiply to -18 and add to -7 ? and
10. What is $\sqrt{0.01}$?
A 0.1 B 0.01 C 0.001 D 0.0001
11. Which shows 60 written as a product of its prime factors?
A $3 \times 4 \times 5$ B $2 \times 3 \times 5$
C $2 \times 2 \times 3 \times 5$ D $2 \times 3 \times 3 \times 5$
12. Which has the largest value?
A $\frac{1}{3}$ B $\frac{2}{5}$ C $\frac{3}{10}$ D $\frac{11}{30}$
13. What number is halfway between $\frac{1}{3}$ and $\frac{1}{5}$?
A $\frac{1}{4}$ B $\frac{4}{15}$ C $\frac{1}{2}$ D $\frac{3}{8}$
14. $\frac{3}{4}$ of an amount is \$180. What is $\frac{2}{3}$ of the amount? \$
15. Which statement is correct?
A $0.3 < 0.08$ B $-0.7 > -0.6$
C $0.123 > 0.4$ D $-0.9 < -0.75$
16. In 1991, Cathy turned 16. At her birthday party she met Jade, who was also celebrating her birthday. Jade was $\frac{1}{4}$ of Cathy's age. On their birthday in 2011, what fraction of Cathy's age will Jade then be?
A $\frac{1}{4}$ B $\frac{4}{7}$ C $\frac{2}{3}$ D $\frac{3}{4}$
17. There were 60 people at a party. The ratio of adults to children was 7 to 5. Later, 20 people left the party. The new ratio of adults to children was 5 to 3. How many adults and children left the party?
A 10 adults and 10 children
B 12 adults and 8 children
C 8 adults and 12 children
D 15 adults and 5 children
18. A packet has balloons in colours of red, white and blue. $\frac{5}{12}$ of the balloons are red and $\frac{1}{3}$ are blue. What fraction of the balloons is white?
A $\frac{1}{15}$ B $\frac{1}{12}$ C $\frac{1}{4}$ D $\frac{1}{3}$

1 B 2 D 3 6% 4 C 5 B 6 A 7 D 8 D
 9 -9 and 2 10 A 11 C 12 B 13 B 14 \$160
 15 D 16 C 17 A 18 C

- 1 The fractions all have a common denominator of 40.

$$\frac{3}{5} = \frac{24}{40}$$

$$\frac{5}{8} = \frac{25}{40}$$

$$\frac{7}{10} = \frac{28}{40}$$

$$\frac{13}{20} = \frac{26}{40}$$

So, in order, the fractions are $\frac{24}{40}, \frac{25}{40}, \frac{26}{40}, \frac{28}{40}$.

The order from lowest to highest is

$$\frac{3}{5}, \frac{5}{8}, \frac{13}{20}, \frac{7}{10}$$

- 2 $9^4 = 9 \times 9 \times 9 \times 9$

$$\text{But } 9 = 3 \times 3$$

$$\text{So } 9^4 = 3 \times 3 \times 3 \times 3 \times 3 \times 3 \times 3 \times 3 = 3^8$$

- 3 30% received a medal.

Of these 20% received a gold medal.

$$\text{Now } 20\% = \frac{1}{5}$$

So the percentage with a gold medal

$$= 30\% \div 5$$

$$= 6\%$$

- 4 Consider the options:

$$0.4 \times 0.8 = 0.32$$

[There must be the same number of places after the decimal point in the answer as there were (in total) in the question.]

$$0.12 + 0.2 = 0.32$$

$$[0.12 + 0.20]$$

$$6.4 \div 0.2 = 64 \div 2 = 32$$

$$1 - 0.68 = 0.32$$

$$[1.00 - 0.68]$$

$6.4 \div 0.2$ is the calculation that is not equal to 0.32.

- 5 [Write each number as a decimal.]

$$\frac{1}{8} = 0.125$$

$$\left[\begin{array}{r} 0.125 \\ 8 \overline{)1.0200} \end{array} \right]$$

$$0.16$$

$$8\% = 0.08$$

$$[8 \div 100]$$

$$\frac{1}{9} = 0.1111\dots$$

$$\left[\begin{array}{r} 0.111 \\ 9 \overline{)1.010} \end{array} \right]$$

The largest number is 0.16.

$$6 \quad (0.3)^2 = 0.3 \times 0.3 = 0.09$$

[There must be the same number of places after the decimal point in the answer as there were (in total) in the question.]

- 7 For every 5 boys there were 2 girls.

So 5 out of every 7 students were boys.

$$\text{Now } 28 \div 7 = 4$$

So there were 4 lots of 7 students.

$$\text{Number of boys} = 5 \times 4 = 20$$

$$\text{Number of girls} = 2 \times 4 = 8$$

Two girls joined the class.

$$\text{New number of girls} = 8 + 2 = 10$$

$$\text{New ratio of boys to girls} = 20 \text{ to } 10 = 2 \text{ to } 1$$

- 8 Saving was 10%

$$\text{Percentage to pay} = 100\% - 10\% = 90\%$$

$$\begin{aligned} \text{Sale price} &= 90\% \text{ of } \$600 \\ &= 0.9 \times \$600 \\ &= \$(0.9 \times 600) \end{aligned}$$

The calculation required is 600×0.9 .

- 9 The two numbers multiply to -18 .

[One must be positive and one negative because they multiply to a negative number.]

They add to -7 .

The two numbers are 2 and -9 .

- 10 $\sqrt{0.01} = 0.1$

[Try the options to see which one multiplied by itself will give 0.01: $0.1 \times 0.1 = 0.01$]

- 11 Try each option:

$3 \times 4 \times 5 = 60$ but 4 is not a prime number so this is not the option.

$2 \times 3 \times 5 = 30$ so this is not the option.

$$2 \times 2 \times 3 \times 5 = 60$$

This is the option.

$2 \times 3 \times 3 \times 5 = 90$ so this is not the option.

60 written as a product of its prime factors is $2 \times 2 \times 3 \times 5$

- 12 [All the fractions have a common denominator of 30.]

$$\frac{1}{3} = \frac{10}{30}$$

$$\frac{2}{5} = \frac{12}{30}$$

$$\frac{3}{10} = \frac{9}{30}$$

$$\frac{11}{30}$$

The largest fraction is $\frac{12}{30}$ or $\frac{2}{5}$.

- 13 $\frac{1}{3}$ and $\frac{1}{5}$ have a common denominator of 15.

$$\frac{1}{3} = \frac{5}{15}$$

$$\frac{1}{5} = \frac{3}{15}$$

The number halfway between $\frac{3}{15}$ and $\frac{5}{15}$ is $\frac{4}{15}$.

- 14 $\frac{3}{4}$ of the amount = \$180

$$\frac{1}{4} \text{ of the amount} = \$180 \div 3 \\ = \$60$$

$$\text{The whole amount} = 4 \times \$60 \\ = \$240$$

$$\frac{1}{3} \text{ of } \$240 = \$240 \div 3 \\ = \$80$$

$$\frac{2}{3} \text{ of } \$240 = 2 \times \$80 \\ = \$160$$

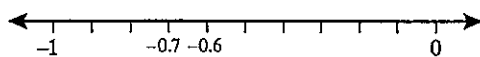
- 15 Consider the options:

$$0.3 < 0.08 ?$$

$$0.30 > 0.08$$

This option is not correct.

$$-0.7 > -0.6 ?$$



$$-0.7 < -0.6$$

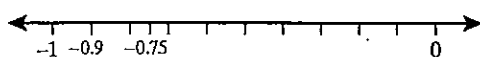
This option is not correct.

$$0.123 > 0.4 ?$$

$$0.123 < 0.400$$

This option is not correct.

$$-0.9 < -0.75 ?$$



This option is correct.

The correct statement is $-0.9 < -0.75$

- 16 In 1991, Cathy was 16.

Jade was $\frac{1}{4}$ of 16 or 4.

$$\text{Years later} = 2011 - 1991 \\ = 20$$

$$\text{Cathy's age in 2011} = 16 + 20 \\ = 36$$

$$\text{Jade's age in 2011} = 4 + 20 \\ = 24$$

$$\text{Fraction of Cathy's age} = \frac{24}{36} \\ = \frac{2}{3}$$

- 17 Of the original 60 people, there were 7 adults for every 5 children.

So 7 out of 12 people were adults.

Now $60 \div 12 = 5$ so there were 5 lots of 12 people.

$$\text{Number of adults} = 5 \times 7 \\ = 35$$

$$\text{Number of children} = 5 \times 5 \\ = 25$$

If 20 people left the party, 40 remained.

Of the remaining people there were 5 adults for every 3 children.

So 5 out of 8 people were adults.

Now $40 \div 8 = 5$ so there were 5 lots of 8 people.

$$\text{Number of adults} = 5 \times 5 \\ = 25$$

$$\text{Number of children} = 5 \times 3 \\ = 15$$

$$\text{Number of adults who left} = 35 - 25 \\ = 10$$

$$\text{Number of children who left} = 25 - 15 \\ = 10$$

So 10 adults and 10 children left the party.

- 18 $\frac{5}{12}$ of the balloons are red and $\frac{1}{3}$ are blue.

$$\begin{aligned} \text{Fraction that is red and blue} &= \frac{5}{12} + \frac{1}{3} \\ &= \frac{5}{12} + \frac{4}{12} \\ &= \frac{9}{12} \\ &= \frac{3}{4} \end{aligned}$$

$$\begin{aligned} \text{Fraction that is white} &= 1 - \frac{3}{4} \\ &= \frac{1}{4} \end{aligned}$$