Fractions and Decimals

1) June 2010 V1

1 Write the numbers in order of size with the **smallest** first.

$\sqrt{10}$ 3.14 $\frac{22}{7}$ π

Answer ..... < ..... < ..... < ..... [2]

2) June 2010 V2

3 Write the following in order of size, **smallest** first.

$\frac{2}{\sqrt{3}}$ $2\sqrt{3}$ $\sqrt{3}$ $2\frac{\sqrt{3}}{2}$

Answer ..... < ..... < ..... < ..... [2]

3) November 2010 V3

6 Write the following in order of size, **smallest** first.

$\frac{20}{41}$ $\frac{80}{161}$ 0.492 4.93%

Answer ..... < ..... < ..... < ..... [2]

4) June 2011 V2

4 $\frac{3}{5} < p < \frac{2}{3}$

Which of the following could be a value of p?

$\frac{16}{27}$ 0.67 60% $(0.8)^2$ $\sqrt{\frac{4}{9}}$

Answer ..... [2]

5) June 2012 V2

3 For this question, $1 < x < 2$

Write the following in order of size, **smallest** first.

$\frac{5}{x}$ $\quad 5x \quad$ $\frac{x}{5}$ $\quad x \quad 5$

Answer ..... < ..... < ..... < ..... [2]

6) November 2016 V3

7 Write these in order of size, smallest first.

0.6^3 $\quad 0.22 \quad$ $\sqrt{0.09}$ $\quad 0.4^2$

..... < ..... < ..... < .....[2]

smallest

2 Write the following in order of size, smallest first.

π 3.14 $\frac{22}{7}$ 3.142 3

Answer ..... < ..... < ..... < ..... < ..... [2]
smallest

13 Pam wins the student of the year award in New Zealand.
She sends three photographs of the award ceremony by post to her relatives.

- one of size 13 cm by 23 cm to her uncle in Australia
- one of size 15 cm by 23 cm to her sister in China
- one of size 23 cm by 35 cm to her mother in the UK

Maximum lengths	Australia	Rest of the world
13 cm by 23.5 cm	$1.90	$2.50
15.5 cm by 23.5 cm	$2.40	$2.90
23 cm by 32.5 cm	$2.80	$3.40
26 cm by 38.5 cm	$3.60	$5.20

The cost of postage is shown in the table above.
Use this information to calculate the total cost.

Answer $ ..... [3]

9) June 2009 V1

3 At 0506 Mr Ho bought 850 fish at a fish market for \$2.62 each.
95 minutes later he sold them all to a supermarket for \$2.86 each.

(a) What was the time when he sold the fish?

Answer(a) ..... [1]

(b) Calculate his total profit.

Answer(b) \$ ..... [1]

10) November 2010 V1

2 Use a calculator to work out the **exact** value of

$$1 + \frac{1}{5} + \left(\frac{1}{5}\right)^2 + \left(\frac{1}{5}\right)^3 + \left(\frac{1}{5}\right)^4 .$$

Answer ..... [2]

11) November 2010 V2

8 Show that $\frac{7}{27} + 1\frac{7}{9} = 2\frac{1}{27}$.

Write down all the steps in your working.

Answer

[2]

12) November 2010 V3

5 Show that $3\frac{3}{4} + 1\frac{1}{3} = 5\frac{1}{12}$.

Write down all the steps in your working.

Answer

[2]

13) June 2011 V2

3 Show that $1\frac{5}{9} \div 1\frac{7}{9} = \frac{7}{8}$

Write down all the steps in your working.

Answer

[2]

14) June 2011 V3

7 **(a)** Find the value of x when $\frac{18}{24} = \frac{27}{x}$

Answer(a) $x =$ ..... [1]

(b) Show that $\frac{2}{3} \div 1\frac{1}{6} = \frac{4}{7}$

Write down all the steps in your working.

Answer(b)

[2]

17) November 2011 V1

1 Use your calculator to find $\sqrt{\frac{45\times 5.75}{3.1+1.5}}$.

Answer ..... [2]

18) November 2011 V1

4 Write down all the working to show that $\frac{\frac{3}{5}+\frac{2}{3}}{\frac{3}{5}\times\frac{2}{3}} = 3\frac{1}{6}$.

Answer

[3]

19) November 2011 V2

5 Jiwan incorrectly wrote $1 + \frac{1}{2} + \frac{1}{3} + \frac{1}{4} = 1\frac{3}{9}$.

Show the correct working and write down the answer as a mixed number.

Answer ..... [3]

20) November 2011 V3

8 Find the value of $\frac{\sqrt[3]{17.1 \quad 1.89}}{10.4 + \sqrt{8.36}}$.

Answer ..... [2]

12 **Without using your calculator**, work out $1\frac{5}{6}+\frac{9}{10}$.

You must show your working and give your answer as a mixed number in its simplest form.

Answer ..... [3]

4 $1\frac{1}{2} + \frac{1}{3} + \frac{1}{4} = \frac{p}{12}$

Work out the value of p.

Show all your working.

Answer p = ... [2]

12 **Without using your calculator**, work out the following.
Show all the steps of your working and give each answer as a fraction in its simplest form.

(a) $\frac{11}{12} - \frac{1}{3}$

Answer(a) ..... [2]

(b) $\frac{1}{4} \div \frac{11}{13}$

Answer(b) ..... [2]

25) November 2012 V1

2 Use your calculator to find the value of

$$\frac{8.1^2 + 6.2^2 - 4.3^2}{2 \times 8.1 \times 6.2}$$

Answer ..... [2]

26) November 2012 V1

4 Write down all your working to show that the following statement is correct.

$$\frac{1 + \frac{8}{9}}{2 + \frac{1}{2}} = \frac{34}{45}$$

Answer

[2]

27) November 2012 V3

2 Show that $\left(\frac{1}{10}\right)^2 + \left(\frac{2}{5}\right)^2 = 0.17$.

Write down all the steps in your working.

Answer

[2]

28) June 2013 V1

5 Show that $1\frac{1}{2} \div \frac{3}{16} = 8$.

Do not use a calculator and show all the steps of your working.

Answer

[2]

29) June 2013 V2

11 Without using a calculator, work out $\frac{6}{7} \div 1\frac{2}{3}$

Write down all the steps in your working.

Answer ..... [3]

30) June 2013 V3

4 Use a calculator to find

(a) $\sqrt{5\frac{5}{24}}$,

Answer(a) ..... [1]

(b) $\frac{\cos 40°}{7}$

Answer(b) ..... [1]

31) June 2013 V3

5 Write the following in order of size, **smallest** first.

$(1.5)^{\frac{2}{3}}$ $\left(\frac{2}{3}\right)^{1.5}$ $\left(\frac{2}{3}\right)^{1.5}$ $\left(-\frac{2}{3}\right)^{\frac{2}{3}}$

Answer ..... < ..... < ..... < ..... [2]

32) November 2013 V1

15 **Do not use a calculator in this question and show all the steps of your working.**

Give each answer as a fraction in its lowest terms.

Work out.

(a) $\frac{3}{4} - \frac{1}{12}$

Answer(a) ..... [2]

(b) $2\frac{1}{2} \times \frac{4}{25}$

Answer(b) ..... [2]

33) June 2014 V1

2 $y = \frac{2}{x^2} + \frac{x^2}{2}$

Find the value of y when $x = 6$.
Give your answer as a mixed number in its simplest form.

Answer $y =$ ..... [2]

1 Calculate $\frac{\sqrt[3]{16}}{1.3^2}$.

Answer ..... [1]

35) June 2014 V2

8 Without using your calculator, work out $\frac{5}{6} - \left(\frac{1}{2} \times 1\frac{1}{2}\right)$

Write down all the steps of your working.

Answer ..... [3]

36) June 2014 V3

10 Without using a calculator, work out $1\frac{1}{4} - \frac{7}{9}$

Write down all the steps in your working.

Answer ..... [3]

5 Without using a calculator, work out $\frac{1}{4} + \frac{1}{6}$.

Write down all the steps in your working and give your answer as a fraction in its simplest form.

Answer ..... [2]

38) November 2014 V2

2 Calculate $\dfrac{8.24 + 2.56}{1.26 - 0.72}$

Answer ..... [1]

39) November 2014 V2

8 **Without using a calculator**, work out $1\frac{1}{6} \div \frac{7}{8}$

Show all your working and give your answer as a fraction in its lowest terms.

Answer ..... [3]

40) November 2014 V3

2 Write the following in order of size, smallest first.

$0.34 \qquad \sqrt{0.6} \qquad 0.6^2 \qquad 0.7^3$

Answer ..... < ..... < ..... < ..... [2]
smallest

41) June 2015 V1

2 Use your calculator to work out $\sqrt{10 + 0.6 \times (8.3^2 + 5)}$.

Answer ..... [1]

42) June 2015 V2

12 Without using a calculator, work out $\frac{4}{5} \div 2\frac{2}{3}$.

Write down all the steps of your working and give your answer as a fraction in its simplest form.

Answer ..... [3]

43) June 2015 V3

8 **Without using a calculator**, work out $1\frac{7}{8} \div \frac{5}{9}$.

Show all your working and give your answer as a fraction in its lowest terms.

Answer ..... [3]

44) November 2015 V2

12 Without using your calculator, work out $2\frac{1}{4} - \frac{11}{12}$.

You must show all your working and give your answer as a fraction in its lowest terms.

Answer ..... [3]

45) November 2015 V3

2 Calculate $\frac{2.07 - 1.89}{5.71 - 3.92}$.

Answer ..... [1]

46) November 2015 V3

15 Work out $\frac{2}{3} + \frac{1}{6} \quad \frac{1}{4}$, giving your answer as a fraction in its lowest terms.

Do not use a calculator and show all the steps of your working.

Answer ..... [3]

47) March 2015 V2

16 **Without using your calculator**, work out $2\frac{7}{9} \div \frac{5}{6}$.

Give your answer as a fraction in its lowest terms.
You must show each step of your working.

Answer ..... [4]

9 **Without using a calculator**, work out $1\frac{4}{5} \div \frac{3}{7}$

Show all your working and give your answer as a fraction in its lowest terms.

Answer ..... [3]

10 Jason receives some money for his birthday.
He spends $\frac{11}{15}$ of the money and has \$14.40 left.

Calculate how much money he received for his birthday.

Answer \$ ..... [3]

9 **Without using your calculator**, work out $1\frac{7}{12} + \frac{13}{20}$

You must show all your working and give your answer as a mixed number in its simplest form.

..... [3]

51) June 2016 V1

16 **Without using a calculator**, work out $\frac{6}{7} \div 1\frac{2}{3}$.

Show all your working and give your answer as a fraction in its lowest terms.

..... [3]

52) June 2016 V2

2 Calculate.

$$\frac{3.07 + 2^4}{5.03 \quad 1.79}$$

..... [1]

53) June 2016 V2

14 **Without using a calculator**, work out $2\frac{5}{8} \times \frac{3}{7}$.

Show all your working and give your answer as a mixed number in its lowest terms.

[3]

54) June 2016 V3

5 **Without using a calculator**, work out $\frac{1}{12} \times 1\frac{1}{5}$.

Show all your working and give your answer as a fraction in its lowest terms.

..... [2]

55) November 2016 V1

4 Work out $\frac{2}{3} - \frac{1}{4}$, giving your answer as a fraction in its lowest terms.

Do not use a calculator and show all the steps of your working.

.....[2]

56) November 2016 V1

14 **Without using your calculator**, work out $3\frac{2}{4} + 2\frac{1}{3} - 1\frac{1}{8}$.

You must show all your working and give your answer as a mixed number in its simplest form.

..... [4]

57) November 2016 V3

5 **Without using a calculator**, work out $\frac{3}{5}+\frac{1}{6}$.

Write down all the steps of your working and give your answer as a fraction in its simplest form.

..... [2]

58) November 2016 V3

13 Write the recurring decimal $0.\dot{2}$ as a fraction.
[$0.\dot{2}$ means 0.222…]

..... [2]

59) June 2015 V2

9 Write the recurring decimal $0.2\dot{5}$ as a fraction.
[$0.2\dot{5}$ means 0.2555...]

Answer ..... [2]

60) November 2015 V1

10 Write the recurring decimal $0.1\dot{5}$ as a fraction.
[$0.1\dot{5}$ means 0.1555...]

Answer ..... [2]

61) March 2016 V2

6 Write the recurring decimal $0.\dot{4}$ as a fraction.
[$0.\dot{4}$ means 0.444…]

..... [2]

62) June 2016 V2

12 Write the recurring decimal $0.3\dot{6}$ as a fraction.
Give your answer in its simplest form.
[0.36 means $0.3666\ldots$]

..... [3]

63) June 2016 V3

8 Write the recurring decimal $0.3\dot{2}$ as a fraction
[$0.3\dot{2}$ means $0.3222\ldots$]

..... [2]

64) November 2016 V1

12 **(a)** Write \$0.70 as a fraction of \$5.60, giving your answer in its lowest terms.

..... [1]

(b) Write the recurring decimal $0.\dot{1}\dot{8}$ as a fraction in its lowest terms.
[$0.\dot{1}\dot{8}$ means 0.181818…]

..... [2]

65) June 2018 V1

3 Write the recurring decimal $0.\dot{6}\dot{3}$ as a fraction.

..... [1]