

Level 19 Card 1 All times tables should be known x2 – x12

1. Write in words:

- a) 23, 567
- b) 652,190
- c) 130, 911
- d) 965, 040

2. Write in figures:

- a. Three hundred and six thousand and seventeen
- b. Nine hundred and twenty-two thousand and four
- c. Thirty thousand, one hundred and twelve
- d. Nine hundred and sixty thousand, two hundred and twenty-two

3. Write in expanded form

Example: 796,421 in expanded form is:

$796,421 = 700000 + 90000 + 6000 + 400 + 20 + 1$

- a) $786,132 = \underline{\hspace{2cm}} + \underline{\hspace{2cm}} + \underline{\hspace{2cm}} + \underline{\hspace{2cm}} + \underline{\hspace{2cm}} + \underline{\hspace{2cm}}$
- b) $637,895 = \underline{\hspace{2cm}} + \underline{\hspace{2cm}} + \underline{\hspace{2cm}} + \underline{\hspace{2cm}} + \underline{\hspace{2cm}} + \underline{\hspace{2cm}}$
- c) $465,312 = \underline{\hspace{2cm}} + \underline{\hspace{2cm}} + \underline{\hspace{2cm}} + \underline{\hspace{2cm}} + \underline{\hspace{2cm}} + \underline{\hspace{2cm}}$
- d) $439,780 = \underline{\hspace{2cm}} + \underline{\hspace{2cm}} + \underline{\hspace{2cm}} + \underline{\hspace{2cm}} + \underline{\hspace{2cm}} + \underline{\hspace{2cm}}$

Level 19 Card 2

1. The Commutative Law is the law of *order*. It works for addition and multiplication but not for division and subtraction. We can swap numbers over and still get the same answer. Example:

$47 + 86 = 133$ and $86 + 47 = 133$ (addition)

$2 \times 4 \times 5 = 40$ and $4 \times 5 \times 2 = 40$ (multiplication)

Write these another way so that you still get the same answer:

- a) $6 + 7 = \square$ and $\square + \square = \square$
- b) $12 + 6 = \square$ and $\square + \square = \square$
- c) $8 \times 7 \times 5 = \square$ and $\square + \square + \square = \square$
- d) $12 \times 4 \times 9 = \square$ and $\square + \square + \square = \square$

2. The Associative Law is the *grouping* law. It doesn't matter how we group the numbers, when we add or multiply.

Example:

$(6 + 4) + 5 = 15$ and $6 + (4 + 5) = 15$ (addition)

$(3 \times 2) \times 8 = 48$ and $2 \times (3 \times 8) = 48$ (multiplication)

Write these another way:

- a) $2 + (4 + 5) = \square$ and $(\square + \square) + \square = \square$
- b) $(3 \times 4) \times 5 = \square$ and $\square \times (\square \times \square) = \square$
- c) $8 \times (4 \times 3) = \square$ and $(\square \times \square) \times \square = \square$

Level 19 Card 3

1. The Distributive Law

Example:

846×8 - We multiply every part of 846 by 8 ...

$$(800 + 40 + 6) \times 8$$

$$= (800 \times 8) + (40 \times 8) + (6 \times 8)$$

$$= 6400 + 320 + 48$$

$$= 6000 + (400 + 300) + (20 + 40) + 8$$

$$= 6768$$

Work these out the same way:

a) 729×6

b) 356×9

c) 438×4

d) 739×7

e)

2. Number facts – Work out these in your head!

a) $4 + 7 =$

$$24 + 7 =$$

$$564 + 7 =$$

b) $4 + 7 =$

$$40 + 70 =$$

$$400 + 700 =$$

Level 19 Card 4

1. Finish the counting:

a) 10, 1, 9, 2, 8, 3, __, __, __, __, __, __, __, __

b) .25, 5.0, 7.5, 1.00, 1.25, __, __, __, __, __

2. Keep on doubling:

a) .25, .50, __, __, __, __, __, __, __

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

3. Keep on halving:

a) 4, __, __, __, __, __, __, __

b) $2\frac{8}{10}$, $1\frac{4}{10}$, __

4. Factors

Write all the factors of: a) 8 b) 9 c) 12

5. Prime numbers

A prime number is a whole number with exactly two factors, itself and 1. Examples:

The number 5 is a prime number because it cannot be divided evenly by any other numbers except for 5 and 1.

The number 4 is not a prime number because it can be divided evenly by 4, 2, and 1.

Make a list of all the prime numbers from 1 to 41.

6. Count by ordinal numbers from 20th to 30th.

Level 19 Card 5

Place value of decimals

T H O U S A N D S	H U N D R E D S	T E N S	O N E S	D E C I M A L · L I N E	T E N T H S	H U N D R E D T H S	T H O U S A N D T H S
1000	100	10	1	·	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1000}$

Draw up a place value chart like this one. Now write these numbers in the place value chart in the right columns:

1. 72, 547.6 b) 84.073 c) 102.45 d) .87
 e) 5.9076 f) 73.0006 g) 109.642 h) 0.0001
 i) 7.0853 j) 1672.001 k) 2.5 l) 908.75

Write as fractions, e.g. $0.003 = \frac{3}{1000}$

- a) 0.4 b) 21.092 c) 1.2345 d) 78.25 e) 590.1

Level 19 Card 6

Decimals

1. Arrange these decimals in ascending order:

- a) 0.2, 0.5, 0.1, 0.3 ____ , ____ , ____
 b) 0.2, 0.23, 0.02 ____ , ____ , ____
 c) 0.6, 0.06, 0.16 ____ , ____ , ____
 d) 2.6, 0.62, 0.26 ____ , ____ , ____
 e) 0.7, 0.76, 0.07 ____ , ____ , ____

2. Arrange these decimals in descending order:

- a) 0.3, 0.6, 0.4, 0.1 ____ , ____ , ____ , ____
 b) 4.5, 4.05, 5.4 ____ , ____ , ____
 c) 2.7, 2.74, 2.47 ____ , ____ , ____
 d) 5.07, 7.05, 0.57 ____ , ____ , ____
 e) 11.11, 11.01, 11.1 ____ , ____ , ____

3. Addition of decimals. Set these out first

- a) $7.35 + 16.025 + 124.3$
 b) $0.86 + 76.3 + 126.025$
 c) $9.75 + 54.096 + 1000.1$

Level 19 Card 7

1. Addition of decimals. Set these out first.

- a) $48.39 + 26.29$
- b) $35.78 + 36.28$
- c) $\$343.56 + \448.67
- d) $29.23\text{m} + 23.73\text{m} + 12.36\text{m}$
- e) $\$29.37 + \30.38
- f) $432.29\text{ kg} + 364.57\text{kg} + 496.87\text{kg}$
- g) $\$164.73 + \$237.38 + \$18.96 + \338.70

2. Subtraction of decimals. Set these out first.

- 1. $0.7 - 0.4 =$
- 2. $0.9 - 0.6 =$
- 3. $1.2 - 0.7 =$
- 4. $3.3 - 0.9 =$
- 5. $1.1 - 0.5 =$
- 6. $57.28 - 29.58 =$
- 7. $94.32 - 29.38 =$
- 8. $\$732.26 - \$43.75 =$

Level 19 Card 8

Multiplication of decimals

1. Multiply by 10

Example: Find $10 \times 0.49 = ?$

Solution: Move the decimal point one step to the right.

$$10 \times 0.49 = 04.9 \text{ (remove zero)} = 4.9$$

- a) $10 \times 0.89 =$
- b) $10 \times 1.589 =$
- c) $10 \times 50.37 =$
- d) $10 \times 398.56 =$

2. Multiply by 100

Example: Find $100 \times 2.65 = ?$

Solution: Move the decimal point two steps to the right. Answer: 265

- a) $100 \times 34.87 =$
- b) $100 \times 3.255 =$
- c) $100 \times 600.49 =$
- d) $100 \times 4976.09 =$

Level 19 Card 9

Multiplication of decimals

Multiply by 1000

Move the decimal point 3 steps.

Example: $1000 \times 0.043 = 43$

Multiply these decimals by 1000:

- a) $1000 \times 0.23 =$
- b) $1000 \times 2.34 =$
- c) $1000 \times 0.003 =$
- d) $1000 \times 14.02 =$

Division of decimals

Set these out first:

- a) $9.1 \div 7 =$
- b) $72.5 \div 5 =$
- c) $7.8 \div 2 =$
- d) $62.32 \div 4 =$
- e) $43.17 \div 3 =$
- f) $98.6 \div 6 =$
- g) $10.05 \div 5 =$
- h) $42.01 \div 8 =$
- i) $90.02 \div 3 =$
- j) $725.1 \div 2 =$

Level 19 Card 10

Practical Problems

1. Mr Josefa bought 10 pigs, 8 goats and 15 sheep. The pigs cost \$30 each. The goats cost \$10 each and the sheep cost \$15 each. How much did he pay altogether?
2. Mary has a \$5 note. She exchanges it with her brother Sam for some coins worth \$5. What is the largest number of coins that Sam can have given Mary?
3. Georgia has \$5. She buys a nut bar for \$1.10. How much change does she get?
4. Aria has \$10. She gets \$4.60 change after buying a packet of rice biscuits. How much do the biscuits cost?
5. Oliver pays for \$1.10 for two apples. He gets 90 cents change. How much money did he give to the person at the checkout?
6. Ben has a box with a number in it that is greater than 7. Moana has a box with a number in it that is less than 9. Tom has a box with a number in it that is greater than 5. They all have the same number. What is it?

Level 19 Card 11

1. Addition

- a) What is the total of the following numbers?
 $345,268 + 459 + 69 + 72,839 + 6,423$
- b) Find the sum of 127,456 and 17,847
- c) To the sum of 414,940 *and* 150,055, *add the sum of* 190,099 *and* 330,013
- d) In a town there are 169,874 men, 137,689 women and 43,847 children. What is the town's population?
- e) What is 268,789 more than 187,964?

2. Subtraction

- a) 4,567 is \square less than 732,456?
- b) 346,914 is \square more than 247,907?
- c) Subtract 210,568 from 864,279
- d) Subtract 824 from 1 million
- e) What is 4890 less than 1 million?

3. Problem solving

- a) Bill working out Bill's name in numbers.
If $A = 1a$, $B = 2a$, $C = 3a$, $D = 4a$, $E = 5a$, $F = 6a$, $G = 7a$ and so on, the value of Bill's name is $2a + 9a + 12a + 12a = 40a$.
What is the value of your name? Write it as an equation.
- b) Some octopuses, fish and crabs are in a rock pool. Altogether there are 56 arms, 5 tails and 30 legs in the pool. How many of each animal?

Level 19 Card 12

Percentages %

A percentage (%) is the fraction "one hundredth" or $1/100$.

So, 1 % of 100 = 1

Let's learn these:

$$25\% = \frac{25}{100} = \frac{1}{4} \quad 50\% = \frac{50}{100} = \frac{1}{2} \quad 75\% = \frac{75}{100} = \frac{3}{4}$$

- a) There are 200 children in a school. 50% are girls. How many boys are there?
- b) There are 500 cows on a farm. 25% of them are brown and 75% are black. How many are brown?
- c) A fisherman caught 150 fish. 25% are swordfish, 25% are tuna and 50% are catfish. How many of each type of fish?
- d) In a class of 28 students, 7 did not do their homework. What fraction of the class did *not* do their homework? What percentage of the class *did* their homework?
- e) In a test a student got 10 out of 20 right. What percentage did the student get for the test?
- f) A shepherd had 100 sheep He lost one. What percentage of his sheep did he lose?
- g) A lady had 10 coins. She lost one. What percentage of her coins did she lose? (One in 10 is like 10 in 100).
- h) 5 cents is what percentage of \$1?
- i) I had \$100 and spent \$80. What percentage of the money did I spend?

Level 19 Card 13

Proper fractions, improper fractions and mixed numbers

A *proper fraction* is when the top number (the numerator) is less than the bottom number (the denominator), and it is between 0 and 1, e.g. $\frac{1}{4}$

An *improper fraction* is the opposite: the top number is greater than the bottom number, e.g. $\frac{12}{4}$

A *mixed number* is a whole number plus a proper fraction, e.g. $1\frac{1}{2}$

To change an improper fraction to a proper fraction or mixed number, we divide the numerator by the denominator, e.g. for $\frac{12}{4}$, divide the 12 by 4. The answer is 3.

1. Change these improper fractions to whole numbers:

- a) $\frac{9}{3} = \square$
b) $\frac{15}{5} = \square$

But what if there is a remainder? e.g. $\frac{16}{5}$

We divide 16 by 5 and get 5 and 1 over. That's $5\frac{1}{5}$

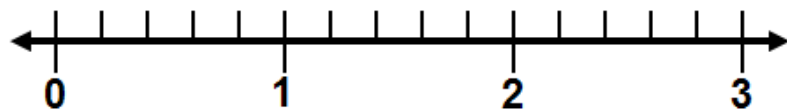
1. Make these into mixed numbers:

- a) $\frac{21}{2}$ b) $\frac{38}{5}$ c) $\frac{59}{7}$ d) $\frac{101}{10}$ e) $\frac{46}{6}$ f) $\frac{28}{3}$

2. Now change these to improper fractions:

- a) $1\frac{1}{2}$ b) $8\frac{4}{5}$ c) $11\frac{3}{10}$ d) $20\frac{2}{3}$ e) $15\frac{1}{2}$ f) $12\frac{3}{4}$

3. Draw this number line and write in all the numbers, including fractions:



Level 19 Card 14 Test (All times tables should be known)

- Write in words: 121,911
- Write in figures: forty-two thousand, three hundred and nine
- In the number 627,943, the 6 is worth 600, 000. What is the 2 worth?
- Write this equation another way so that you still get the same answer:
 $(5 \times 2) \times 10 = \square$ and $\square \times (\square \times \square) = \square$
- $231 \times 3 = (200 \times 3) + (30 \times 3) + (3 \times 3) = \square$
- $3 + 6 = \square$ $30 + 60 = \square$ $300 + 600 = \square$
- Which of these are prime numbers:
a) 9 b) 12 c) 15 d) 11
- Arrange these from smallest to largest:
.765 1.6 .02 3.02
- Addition: set out before working it out.
 $6.75 + 192.2 + 3000.65 = \square$
- Subtraction: set out before working it out.
 $1.1 - 0.5$
- a) $654.3 \times 10 = \square$
b) $72.08 \times 100 = \square$
- There were 100 people in a long-distance race. 12 people finished in 15 minutes. What percentage is this?
- Change $\frac{17}{5}$ to a mixed number.
- Change $1\frac{1}{2}$ to an improper fraction.