Worksheet 1

Answer these questions on separate paper! All non-calculator!

Arithmetic with whole numbers

Use any non calculator method you know.

1) Work out 23×49
2) Work out 183×94
3) Work out $3104 \div 8$
4) Work out $8412 \div 7$
5) Work out $2107 - 892$

BIDMAS skill and puzzle questions

1) Work out $3 + 7 \times 6$
2) Add a pair of brackets to the expression below to make it true
   $22 - 10 \div 3 = 4$
3) Work out $25 - (30 - 18)$
4) Work out the value of $5 \times 6 - 4 \times 7$
5) Calculate the value of $30 \div 6 - 64 \div 16$
6) Add a pair of brackets to the expression below to make it true
   $24 \div 20 - 14 = 4$
7) Work out $\dfrac{3 \times 6}{95 - 86}$
8) Work out $\dfrac{40 - 5 \times 6}{6 \times 7 - 4 \times 8}$
9) Work out $4(20 - 18) + 3(10 - 2 \times 3)$
10) Work out $8^2 - 7 \times (100 - 94)$

Check your answers with a scientific calculator (phone app will do).

Negative number arithmetic

1) Work out $15 \div -5$
2) Write down the value of $-7 - 8$
3) What is the difference between –9 and +7 ?
   Hint: use a number line
4) Write down the value of $5 - 17$
5) Write down the value of $-17 + 5$
6) Work out the value of -7×5
7) Write down the value of $-4 - -9$
8) The temperature early one crisp September morning was –3°C.
   The temperature increased by 8°C
   What is the new temperature?
9) Work out the value of -6×-8
10) Freda has £350 in her bank account on Thursday morning. She pays the gas bill, £96.50, and then the electricity bill, £47.89. Then she does the weekly shop, £87.50 and buys a Network pass for a month, £109. Finally Freda pays in £30 to the credit union and buys a pair of shoes for £14.99.
    Is Freda in overdraft by the time all these charges are applied to her account?
11) Work out the value of $-6 \times 8 - 3 \times -7$
12) Work out the value of $(-12)^2 - 180 \div (-17 + 19)$
    Hint: BIDMAS still applies!
13) $? \times 4 = -60$. What number is represented by the ?
14) $3 \times ? + 14 = -1$
    What value must ? have?
15) Work out $(30 \div -15 + 6 \times 7) \div (100 - (9^2 - 1))$
    Hint: work out the inside bracket first!

Symbols and inequalities

Tick the boxes as appropriate – don't copy this table out, we'll mark it on the whiteboard in class.

Statement	TRUE	FALSE
"$8 < 7$"		
"$4 \geq -8$"		
"$x = 3$ satisfies the inequality $-3 < x < 5$"		
"$0.301 < 0.3 < 0.45 < 3.01$"		
"$4.\overline{9} \leq 5.0$"		
"$4.\overline{9} < 5.0$"		
"$h = 325$ is in the range $300 < h \leq 325$"		
"$749.75 < 750$"		
"$93.045 > 93.05$"		
"$x = \sqrt{64}$ lies in the range $-10 < x < -7$"		

Now try these questions on separate paper

1) Write down a number that is larger than 3 and smaller than 10

2) Algernon says "Widgets cost £3.99 each for quantities from 10 up to 100, and then they cost £2.99 from 100 up to 500".
   Can you write an inequality that represents what Algenon means by the phrase "from 10 up to 100"?

3) The variable x satisfies the inequality $-3 < x \leq 2$.
   Write down all the integer values that x can take.

4) The variable x satisfies the inequality $0 \leq x < 6$
   The variable y satisfies the inequality $0 < y \leq 6$
   Write a list of integers that can satisfy *both* inequalities.

5) "z is at least 12 and less than 47"
   Write an inequality for z.

Context questions

Try these without a calculator. Show the method that you used.

1) Five oranges cost £1.20.
   How much should you pay for three oranges at the same rate?

2) Algernon is packing small metal parts.
   He puts 12 metal parts in a packet.
   He puts 36 packets in a box.
   He completes 50 boxes one day.
   How many small metal parts did Algernon pack that day?

3) Asif has a food stall in a market.
   He keeps a record of the meals he sells for one session...

Meal	**Price each**	**Number sold**
Ful maddamas and pitta	£3.00	12
Homous and pitta	£2.50	15
Falafel and pitta with salad	£4.50	8
Pitta with salad and mint dressing	£1.50	18

   Calculate the total value of the meals sold in that session.

4) How many 200ml cups of cola can you pour from a 2.5 litre bottle of cola?
   Hint: 1000 ml in 1 litre (have a look at the labels on jars and cans)

5) Anita has a 120 metre roll of cloth.
   She cuts lengths of 12 metres, 45 metres and 37 metres.
   How many metres are left on the roll?

6) Aaron is drilling holes in a length of wood.
   He drills 19 holes in a straight line.
   The centres of the holes are 34mm apart.
   Calculate the distance from the centre of the first hole to the centre of the 19^{th} hole. (Hint: sketch a picture and label the lengths).