



FLE Mathematics

Term 1

Fractions, Ratio, & Rates

Student Name: _____

Teacher Name: _____

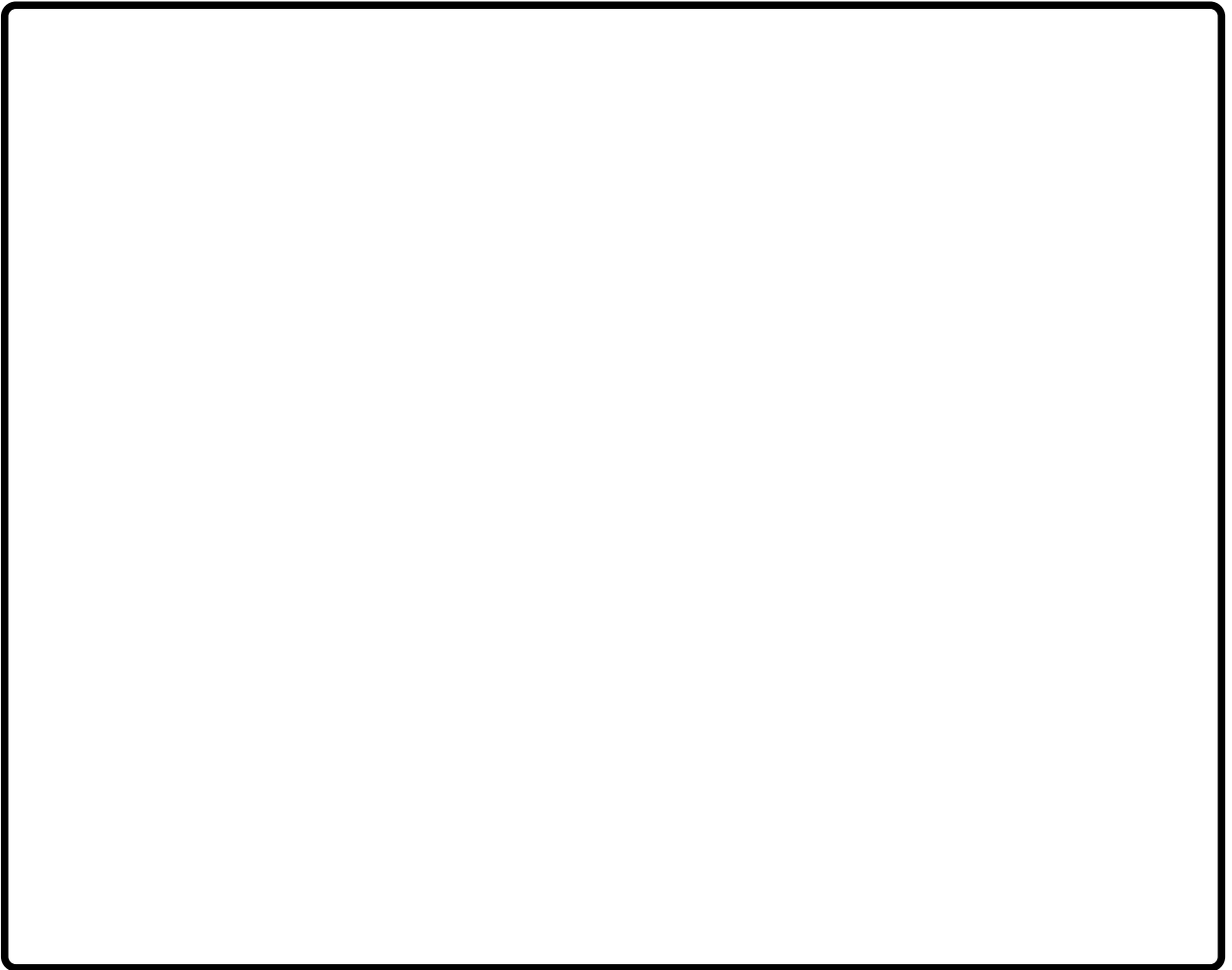
Background

Due to the incredible success and widespread popularity of the TC Animals program, Templestowe College has undergone an exciting transformation. We are now a fully-fledged farming and agricultural school. TC is at the forefront of combining education with real-world agricultural skills.

BIDMAS

1. TC has 3 cows, 4 sheep, and 5 chickens.

a. Draw the animals in the space below.



b. How many animals in total are there?



2. Each of the three cows eats a different amount of feed per day: one eats 3 buckets, another eats 4 buckets, and the last eats 2 buckets.

a. Write an expression for the total number of buckets of feed needed for all three cows over seven days.

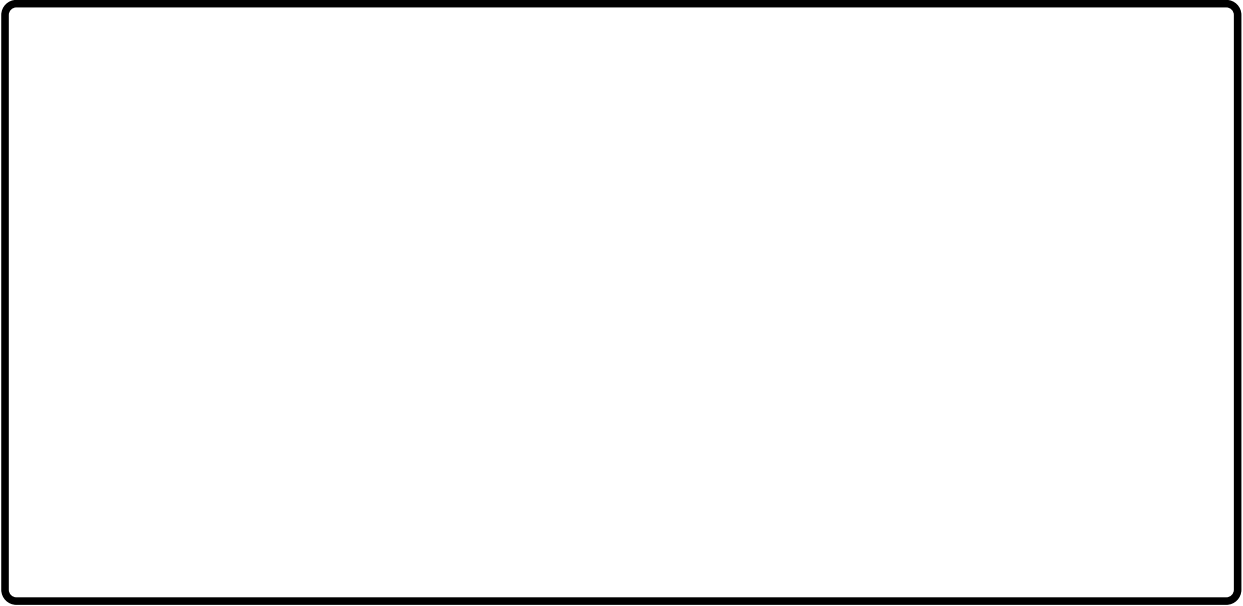
b. How many buckets of feed do the cows consume in one week?

3. A tractor needs to plow 5 wheat fields and 3 corn fields each week.

a. Write the expression for how many fields will need to be plowed each fortnight.

b. Calculate the total number of fields plowed in a fortnight.

4. The TC Farmers Market's monthly earnings are calculated as $(300 + 150) \div (5 \times 2) + 20$. How much does the farm earn in a month? Please show your working.



Prime Numbers and Factors

1. You have 24 eggs and want to pack them into baskets of equal size. What are the possible ways to divide the eggs?

(Hint: find the factors of 24)




2. There are 17 apples picked on the farm. How can they be divided into equal groups?



3. The student leaders have decided to grow carrots in a rectangular garden bed. They want to plant 36 carrots in total. Find all the possible ways they can arrange the carrots into equal rows and columns to form a rectangle (Hint: Find the factors of 36).



4. Some of the animal groups on the farm have 7 animals. Is 7 a prime number? Why or why not?



Factor Trees

1. Part of the turf area has been designated for a pumpkin patch which produced 18 pumpkins. Draw a factor tree for the number 18.



2. B-Wing has been replaced by citrus trees, from which 60 limes have been picked. Use a factor tree to break down 60 into its prime factors.



Multiplying and Dividing Fractions

1. The chickens each need to be fed $\frac{1}{4}$ of a cup of grain per day. If there are now 6 chickens, how many cups of grain are needed each day?

2. A grain silo is $\frac{5}{6}$ full. $\frac{2}{3}$ of the grain is sold to a local hobby farmer.

- a. What fraction of the silo's total capacity is sold?

(Hint: Multiply fractions)

- b. What fraction of the silo's total capacity is left?

3. There is $\frac{7}{8}$ of a bale of hay and it needs to be split equally among 3 sheep. How much hay does each sheep get?



Adding and Subtracting Fractions

1. You are asked to give $\frac{2}{7}$ of a bale of hay to the cows and $\frac{3}{7}$ to the goats. What fraction of the bale has been used in total?

2. During the morning $\frac{1}{6}$ of a field of wheat is harvested and $\frac{3}{4}$ in the afternoon. How much of the field has been harvested in total?

3. A water trough is $\frac{4}{7}$ full, but $\frac{1}{3}$ of the water is used by the animals. What fraction of the water is left in the trough?

4. There was $2\frac{2}{3}$ bags of fertilizer already, when another $1\frac{1}{2}$ bags were bought. How many bags of fertilizer are there altogether?

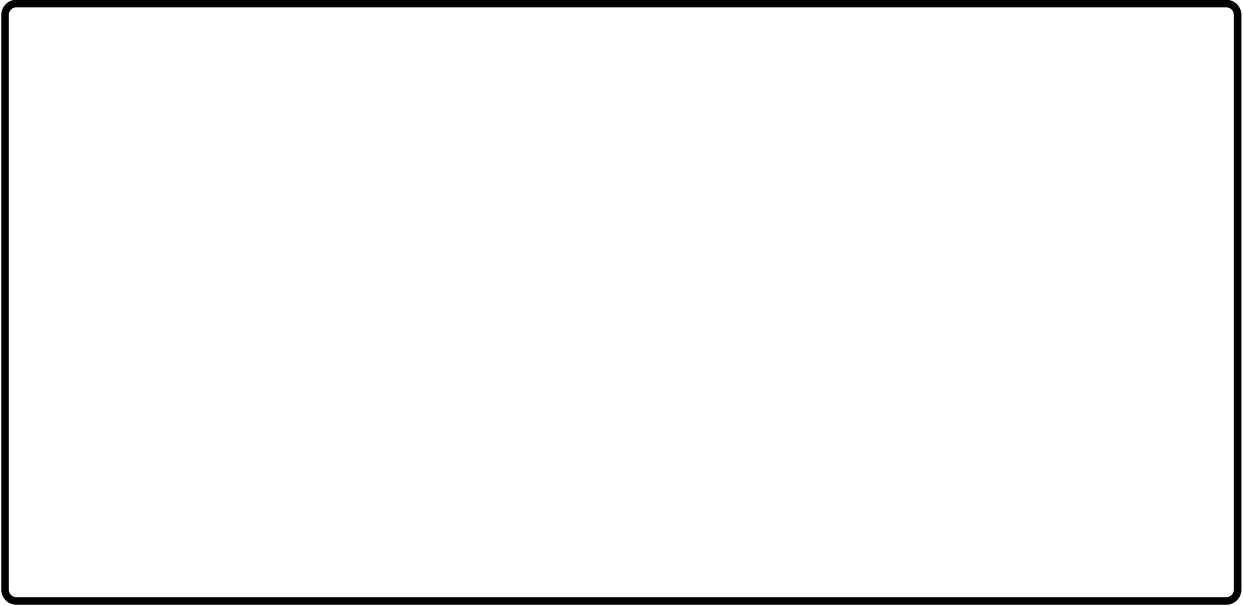


5. There is one whole bale of hay. A pig eats $\frac{2}{5}$ of the bale, and the remaining hay is given to the goats. How much hay is left for the goats?



Ratios

1. TC in its new form has 4 pigs and 6 turtles. Represent the ratio of pigs to turtles by drawing the animals.



2. In one part of the school, there are 3 chickens, 5 ducks, and 2 geese. Write the ratio of chickens to ducks to geese.



3. With the extra space there is now room for 18 alpacas and 24 guinea pigs. Write and simplify the ratio of alpacas to guinea pigs.



4. There are new plans to redevelop the oval so that it can house 54 sheep, 72 goats, and 90 pigs. Simplify the ratio of sheep to goats to pigs.



5. 20 kg of feed is divided between the ducks and chickens in the ratio of 2 : 3. Calculate how much feed is for the ducks and how much for the chickens.



6. The TC Farmers Market shares 48 litres of milk between three families in the ratio 3 : 5 : 4. How much milk does each family receive?



7. Pig feed is mixed in the ratio 3 : 2 : 1 for corn, grain, and soybeans. If TC uses 18 kilograms of corn, how much grain and how much soybeans are needed?

8. The recommended disinfectant-to-water ratio for F10 disinfectant is 1 : 250. However, by mistake, you've mixed 50 ml of disinfectant with 500 ml of water.

i. What is the current ratio of disinfectant to water in the mixture?

ii. How much more water needs to be added to adjust the mixture to the correct ratio of 1 : 250?

Rates

1. A tractor plows 5 hectares in 2 hours. How many hectares does the tractor plow in 4 hours?

2. If the cows produce 8 litres of milk every two days, calculate:

- i. How much milk is produced in 1 day?

- ii. How much milk is produced in 7 days?

3. If the farm used 15 litres of water to irrigate 3 fields, how much water is needed for 10 fields?

4. A piglet is born at 1.09 kg and gains 5.7 kg per week.

a. How much will the pig weigh after 20 weeks?



b. If at 27 weeks, the pig is full grown and weighs 128 kg, how much is gained on average for the last 7 weeks?

