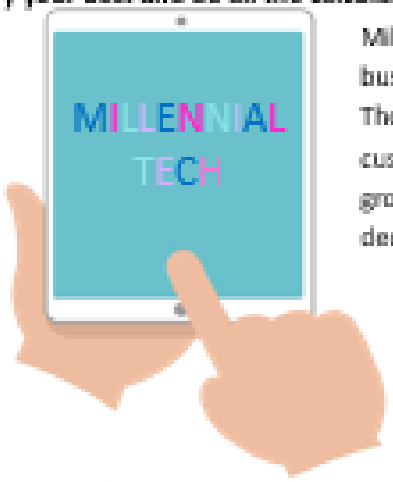
L.O: To Review Fractions 26.06.2020/ XXVI.VI.MMXX

Try your best and do all the calculations you can. If they are too tricky, review questions from the week.



Millennial Tech is a local gaming and device store; they have been in business for 2 years and are reviewing their sales and business model. They have lots of data from their accounts and have been asking customers what they need and how they would like to see the business grow. Now it is time to bring it all together and make some big business decisions!

Sales Review: The data below comes from a review of all the devices sold over the last 3 years. It shows the sales of each device as a fraction of the whole amount.

1. Put the devices in order from most sales to fewest sales.

Smartphones $\frac{1}{4}$ Games Consoles $\frac{8}{32}$ Tablets $\frac{3}{16}$ Laptops $\frac{2}{16}$ VR Headsets $\frac{1}{16}$ PCs $\frac{1}{8}$

2. The director would like to know how many of the total sales were handheld devices. Calculate the fraction of sales that all handheld devices represent.
(Handheld = Tablets, Smartphones and half the Games Consoles).

Customer Profiling: The company have created a profile of their users. The tables below represent people from the most popular age range, between 15 and 25.

3. Use the information to complete the tables.

Type of use	Fraction
Study	$\frac{2}{5}$
Social	$\frac{\square}{5}$
Work	$\frac{9}{10}$

Number of Devices Owned	Fraction
2	$\frac{1}{1}$
3	$\frac{\square}{\square}$
4	$\frac{\square}{\square}$

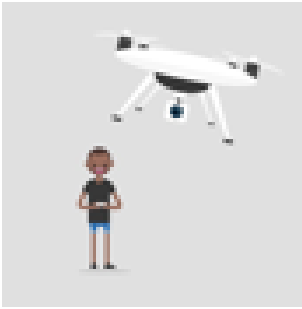
$\frac{5}{10}$ fewer people use their device for social purposes than for work.

$\frac{8}{15}$ fewer people owned 3 devices than 2.

$\frac{1}{3}$ fewer people owned 4 devices than 3.

Product expansion: Millennial Tech are considering expanding into tech based play products such as drones and robotics. Some market research indicates that this could be a profitable expansion. Another business has been selling the products elsewhere in the country and made a profit of £1240. With their business size, they think their profit could be $\frac{3}{4}$ of this after one year, and $\frac{2}{5}$ of the original amount in the second year.

4. What fraction of £1240 would they have after two years? Do you think they will have made as much profit?



The new drones have arrived. The delivery driver has to write the weight of the box on the side to help staff know where to store it. The drones weigh $2\frac{1}{4}$ kg each and the boxes and packaging weigh $\frac{8}{10}$ kg. There are 4 drones in each box.

5. What should the driver write on the box? Write your answer as a fraction.

Party Time: To launch the new product lines and celebrate 2 years in business, Millennial Tech plan to hold a party in their shop premises. They expect around 120 guests to come during the day and people can try out products, chat with the experts and enjoy some drinks and pizza together.

Party organisers have advised they can expect people to eat around $1\frac{1}{6}$ pizzas and drink $1\frac{1}{2}$ bottles of juice each.

6. How many pizzas and drinks should they buy?

Advertising for the party is key! Millennial Tech decide to order banners for the shop windows, stickers for the sides of their vans and special bags with the advert printed on.

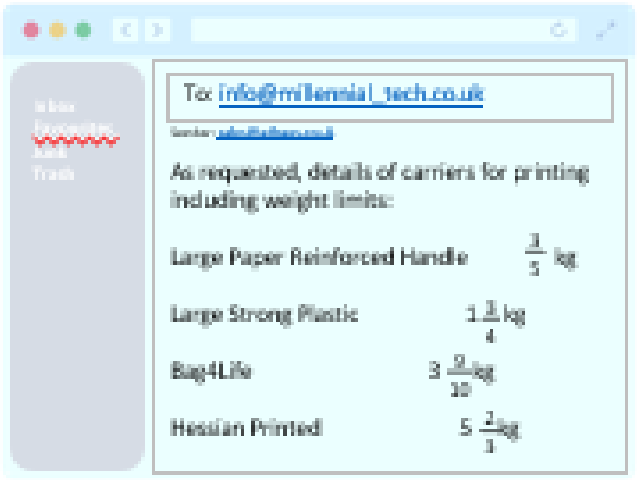
The shop has three different windows measuring $3\frac{4}{5}$ m, $2\frac{3}{5}$m and $4\frac{2}{3}$m in length.

7. How long will the repeating banner need to be so it can be cut to fit all three windows?

Each van has panels on either side for the stickers. There are two different models of vans. The first model has two panels with a length of $2\frac{3}{5}$m each and the second model has two panels with a length of $3\frac{7}{8}$ m each.

8. Calculate how long the vinyl print will need to be so it can be cut to fit all four panels.

A design has been selected for the carrier bags which will be used at the party. We now need to select which type of bag to order. The print shop have sent the following email:


To: info@millennial_tech.co.uk

As requested, details of carriers for printing including weight limits:

Large Paper Reinforced Handle $\frac{3}{5}$ kg

Large Strong Plastic $1\frac{3}{4}$ kg

Bag4Life $3\frac{9}{10}$ kg

Hessian Printed $5\frac{2}{3}$ kg

Based on our research, people may buy up to 4 items. The weight of each item is given below.

Smartphone	$\frac{1}{5}$ kg	Laptop	$2\frac{1}{3}$ kg
Drone	$\frac{2}{3}$ kg	VR Headset	$\frac{1}{2}$ kg
Console	$4\frac{1}{5}$ kg	PC	$11\frac{1}{5}$ kg
Tablet	$\frac{4}{5}$ kg		

9. Which carrier bag would ensure people could buy any 4 items they choose? Are there any items which could not go into a carrier bag?

The manager has requested the weights be changed into improper fractions to help his calculations, to impress him you decide to also create an equivalent fraction underneath.

10. Complete the fractions in the table below.

Smartphones	Drones	Consoles	Tablets	Laptops	VR Headsets	PCs
$\frac{1}{5}$	$\frac{2}{3}$	$\frac{\square}{5}$	$\frac{4}{5}$	$\frac{\square}{3}$	$\frac{1}{2}$	$\frac{\square}{5}$
$\frac{\square}{\square}$	$\frac{\square}{\square}$	$\frac{\square}{\square}$	$\frac{\square}{\square}$	$\frac{\square}{\square}$	$\frac{\square}{\square}$	$\frac{\square}{\square}$

Delivery Dilemma: The week before the party there is a hitch and only part of the expected delivery comes. Almost every piece of stock is affected: only $\frac{8}{12}$ of the smartphones arrive, $\frac{7}{8}$ of the tablets, $\frac{3}{4}$ of the VR headsets and $\frac{7}{10}$ of the drones.

11. Which item is most affected?

12. Calculate how much of each part of the order is missing.

Smartphones $\frac{\square}{\square}$ Tablets $\frac{\square}{\square}$ VR Headsets $\frac{\square}{\square}$ Drones $\frac{\square}{\square}$

There are many last minute jobs to be done. The manager has made a chart showing what fraction of the job should be done each day. She needs to ensure they are all completed before the party on Saturday.

13. The manager is called away to deal with a complaint and leaves you to complete the chart.

Task	per day	Monday	Tuesday	Wednesday	Thursday	Friday
Stock Taking	$\frac{1}{3}$					
Hang Banners	$\frac{2}{5}$					
Complete Accounts	$\frac{2}{9}$					
Invite Regulars	$\frac{3}{7}$					

14. Which day will each task be completed?

Stock	Banner	Accounts	Contacts

Disaster Struck! There was a leak in the store room; luckily, all the tech is fine but the red carpet ordered especially for the shop has been stained! The carpet was $12\frac{4}{5}$ m long but $3\frac{9}{10}$ m has been damaged.

15. How much of the carpet can still be used?

The party is going to be a great success. Millennial Tech will be going strong for years to come!
Thanks for your help!

1. Order of sales: Smartphones and Games Consoles joint top; Tablets; Laptops and PCs joint third; VR Headsets.

2. $\frac{9}{16}$ of sales were handheld devices.

Half of $\frac{8}{32}$ is $\frac{4}{32}$, so $+\frac{4}{32}+\frac{3}{16}$ $\frac{1}{4}$ $+\frac{2}{16}=$ $\frac{3}{16}$ $\frac{4}{16}$ $\frac{9}{16}$

3.

Type of use	Fraction
Study	$\frac{2}{8}$
Social	$\frac{2}{8}$
Work	$\frac{4}{16}$

Number of Devices Owned	Fraction
2	$\frac{1}{4}$
3	$\frac{7}{16}$
4	$\frac{3}{16}$

4. They would have $\frac{23}{20}$ of the profit, which is $1\frac{3}{20}$ so they will have made more profit than the other company.

5. $\frac{2}{3}$ x 4 = $\frac{8}{3}+\frac{8}{3}=\frac{8}{10}+\frac{80}{30}=\frac{24}{30}=3$ $\frac{104}{30}$ $\frac{14}{30}$

6. They should order 140 pizzas and 180 bottles of juice.

7. The window banners will need to be $11\frac{1}{15}$ m long.

8. The vinyl stickers will need to be $12\frac{19}{20}$ m long.

9. The hessian bag would be best to order.
PCs could not go into a bag.
A console could only be placed in a bag with items weighing around 1 kg. $\frac{1}{2}$
2 laptops could go into a bag, with an item less than 1 kg.

10.

Smartphones	Drones	Consoles	Tablets	Laptops	VR Headsets	PCs
$\frac{1}{5}$	$\frac{2}{3}$	$\frac{21}{5}$	$\frac{4}{5}$	$\frac{7}{3}$	$\frac{1}{2}$	$\frac{56}{5}$
$\frac{12}{60}$	$\frac{40}{60}$	$\frac{252}{60}$	$\frac{48}{60}$	$\frac{140}{60}$	$\frac{30}{60}$	$\frac{672}{60}$

11. Smartphones are most affected by the delivery problem.

12. Smartphones $\frac{4}{12}$ or $\frac{1}{3}$ Tablets $\frac{1}{8}$ VR Headsets $\frac{1}{4}$ Drones $\frac{3}{10}$

13.

Task	per day	Monday	Tuesday	Wednesday	Thursday	Friday
Stock Taking	$\frac{1}{3}$	$\frac{1}{3}$	$\frac{2}{3}$	$\frac{3}{3}$		
Hang Banners	$\frac{2}{5}$	$\frac{2}{5}$	$\frac{4}{5}$	$\frac{5}{5}$		
Complete Accounts	$\frac{2}{9}$	$\frac{2}{9}$	$\frac{4}{9}$	$\frac{6}{9}$	$\frac{8}{9}$	$\frac{9}{9}$
Invite Regulars	$\frac{3}{7}$	$\frac{3}{7}$	$\frac{6}{7}$	$\frac{7}{7}$		

14.

Stock	Banner	Accounts	Contacts
Wednesday	Wednesday	Friday	Wednesday

15. $8\frac{9}{10}$ m of the carpet can be used.