Answers - Fractions: halves and quarters

Year: Year 1

Answer to Question 1

a. **Yes.** The rectangle is cut into 2 parts that are exactly the same size. If you fold one part onto the other they match, so each part is a half.
b. **Yes.** The circle is cut through the middle into 2 parts. The two parts match exactly when you fold them, so they are halves.
c. **No.** One piece is big and one piece is small. Halves must be the same size, so these two pieces are not halves of the square.

Answer to Question 2

a. 1 of 2 equal parts: $\frac{1}{2}$.
b. 1 of 2 equal parts: $\frac{1}{2}$.
c. 2 of 4 equal parts. 2 quarters is the same as $\frac{1}{2}$.

Answer to Question 3

a. 1 of 4 equal parts: **a quarter** ($\frac{1}{4}$).
b. 3 of 4 equal parts: **three quarters** ($\frac{3}{4}$).
c. 2 of 4 equal parts: **a half** ($\frac{1}{2}$).
d. All 4 parts: **a whole** (4 quarters).

Answer to Question 4

a. Half of 4 is **2**. Check: 2 + 2 = 4.
b. Half of 8 is **4**. Check: 4 + 4 = 8.
c. Half of 12 is **6**. Check: 6 + 6 = 12.
d. Half of 18 is **9**. Check: 9 + 9 = 18.
e. Half of 20 is **10**. Check: 10 + 10 = 20.

Answer to Question 5

a. A quarter of 4 is **1**. Check: 4 groups of 1 make 4.
b. A quarter of 8 is **2**. Check: 4 groups of 2 make 8.
c. A quarter of 12 is **3**. Check: 4 groups of 3 make 12.
d. A quarter of 16 is **4**. Check: 4 groups of 4 make 16.

e. A quarter of 20 is **5**. Check: 4 groups of 5 make 20.

Answer to Question 6

a. Two halves put back together fill the whole shape, so 2 halves make one **whole**.
b. Four quarters fill the whole shape: 1, 2, 3, 4 quarters. So 4 quarters make one **whole**.
c. Two quarters fill half of the shape, because 4 quarters is a whole and 2 is half of 4. So 2 quarters make one **half**.
d. Cut a half into 2 equal parts: each part is one of 4 equal parts of the whole, so half of a half is a **quarter**.

Answer to Question 7

a. 1 slice of 4: $\frac{1}{4}$.
b. 2 slices of 4: $\frac{2}{4}$, which is the same as $\frac{1}{2}$.
c. 1 + 1 = 2 slices: $\frac{2}{4}$ (or $\frac{1}{2}$).
d. 1 + 2 + 1 = 4 slices. All of it is eaten. **No**, no pizza is left.

Answer to Question 8

a. 2 halves, then each cut in 2: 2 + 2 = **4** pieces.
b. $\frac{1}{4}$ (a quarter) each.
c. 2 pieces of 4: $\frac{2}{4}$, which is $\frac{1}{2}$ the sandwich.
d. 4 − 2 = 2 pieces, so $\frac{1}{2}$ is left.

Answer to Question 9

a. Share 12 cars into 2 equal groups: 6 and 6. Half of 12 is **6**, so Tom gives his brother 6 cars.
b. Share 12 cars into 4 equal groups: 3, 3, 3 and 3. A quarter of 12 is **3**, so his sister gets 3 cars.
c. Add the cars given to the brother and the sister: 6 + 3 = **9** cars given away.
d. Tom started with 12 and gave away 9: 12 − 9 = **3** cars. Tom keeps 3 cars, which is also a quarter of 12.

Answer to Question 10

a. Half of 8 is **4**.
b. A quarter of 8 is **2**.

c. 4 + 2 = **6**.
d. 8 − 6 = **2**. Two cupcakes are left. That is a quarter of 8.

Answer to Question 11

a. Half of 16 is **8** each.
b. The friend shares her 8 equally between 2: half of 8 is **4** stickers.
c. 4 out of 16 is a quarter: $\frac{1}{4}$. (4 + 4 + 4 + 4 = 16)
d. Dina has 8 and her friend has 4. **Yes**, Dina has more.

Answer to Question 12

a. Half of the book means 20 pages shared into 2 equal parts: 10 and 10. Jo reads **10** pages on Monday.
b. A quarter means 20 pages shared into 4 equal parts. 5 + 5 + 5 + 5 = 20, so a quarter is **5** pages on Tuesday.
c. Add the two days: 10 + 5 = **15** pages read in total.
d. The book has 20 pages and Jo has read 15: 20 − 15 = **5** pages left. That is one more quarter of the book.

Answer to Question 13

a. The parts are equal, so Ali has two **halves**. He is right.
b. The parts are not equal. **Bella is not right**.
c. 2 of 4 equal parts. 2 quarters is the same as a half. **Yes, he has half**.
d. 1 of 4 equal parts. Dee takes $\frac{1}{4}$, a quarter.

Answer to Question 14

a. 2 of 4 parts: $\frac{2}{4}$, or $\frac{1}{2}$.
b. 1 of 4 parts: $\frac{1}{4}$.
c. 4 − 2 = 2 parts are not blue: $\frac{2}{4}$ or $\frac{1}{2}$.
d. Blue is 2 parts and yellow is 1 part. The **blue** part is bigger.

Answer to Question 15

a. A quarter of 20 is **5** coins.
b. 4 coins × 4 friends = 16, not 20. Zak's sister is **right**.
c. 2 quarters is $\frac{1}{2}$ (a half).
d. Half of 20 is **10** coins. Check: 5 + 5 = 10.

Answer to Question 16

a. Each apple makes 2 halves. 2 + 2 + 2 + 2 = **8** halves.
b. Each orange makes 4 quarters. 4 + 4 = **8** quarters.
c. Half of 8 quarters is 4. 8 + 4 = **12** pieces.
d. 8 − 4 = **4** quarters.

Answer to Question 17

a. Half of 8 is **4** squares.
b. Hana keeps the other half, which is **4** squares.
c. Half of 4 is **2** squares.
d. Hana keeps 2 squares out of 8. That is ¼, a quarter. Check: 2 + 2 + 4 = 8.

Answer to Question 18

a. Half of 16 is **8** centimetres.
b. Half of 8 is **4** centimetres.
c. **8 cm, 4 cm and 4 cm**. Check: 8 + 4 + 4 = 16.
d. The pieces are not all the same length (8 is not 4). **Yara is not right.** Two pieces are quarters and one is a half.

Answer to Question 19

a. Half of 24 is **12**.
b. A quarter of 24 is **6**.
c. 24 − 12 − 6 = **6** yellow beads.
d. Red is 2 quarters and blue is 1 quarter. That makes 3 quarters. So yellow is ¼, a quarter. Check: 6 beads is a quarter of 24.

Answer to Question 20

a. **2** equal parts (halves).
b. Each part is folded in half: 2 + 2 = **4** equal parts (quarters).
c. Each part is folded in half again: 4 + 4 = **8** equal parts (eighths).
d. After 2 folds there are 4 equal parts. One part is ¼.