

Fraction Operations Hand-In Assignment

For all sums and differences, **reduce** the fractions and put them into **mixed** form. Show your work for full marks.

1) Solve the following fraction problems. (1 mark for a-c, 2 marks for d-h, 3 marks for i-l)

a) $\frac{2}{5} + \frac{4}{5}$

b) $\frac{11}{9} - \frac{4}{9}$

c) $\frac{7}{5} - \frac{4}{5}$

d) $\frac{5}{2} - \frac{1}{4}$

e) $\frac{3}{4} + \frac{1}{2}$

f) $\frac{5}{6} + \frac{7}{3}$

g) $1\frac{1}{2} + \frac{7}{2}$

h) $2\frac{5}{9} - 1\frac{2}{9}$

i) $3\frac{1}{3} + 4\frac{5}{9}$

j) $5\frac{3}{4} + 2\frac{1}{5}$

k) $2\frac{7}{9} - 1\frac{2}{5}$

l) $10\frac{2}{5} - 3\frac{6}{7}$

2) Solve each of the four following problems. Which one doesn't belong and why? (9)

a) $3\frac{5}{8} - 1\frac{6}{8}$

b) $3\frac{4}{9} - 1\frac{2}{9}$

c) $3\frac{6}{9} - 1\frac{2}{3}$

d) $2\frac{6}{8} - \frac{3}{4}$

3) Fill in the missing section of each equation. Show your thinking. (hint: find an LCD) (2 each)

a) $\frac{2}{3} + \frac{?}{?} = \frac{5}{3}$

b) $\frac{4}{3} + \frac{?}{?} = \frac{20}{9}$

c) $\frac{8}{9} - \frac{?}{?} = \frac{2}{9}$

d) $\frac{4}{7} - \frac{?}{?} = \frac{1}{14}$

e) $\frac{?}{?} - \frac{6}{5} = 1$

f) $\frac{?}{?} + 1\frac{3}{4} = 4\frac{3}{4}$

g) $\frac{?}{?} + 2\frac{5}{6} = 3\frac{11}{12}$

h) $\frac{?}{?} - 1\frac{2}{4} = 1$

i) $5\frac{7}{8} - \frac{?}{?} = 2\frac{1}{4}$

4) What pairs of fractions could satisfy the following equations? Make sure your two answers aren't just using equivalent fractions. (2 each)

a) $(\quad) + (\quad) = 2$

b) $(\quad) - (\quad) = \frac{2}{3}$

$(\quad) + (\quad) = 2$

$(\quad) - (\quad) = \frac{2}{3}$

5) If you are building a cabinet that is $16\frac{1}{4}$ cm across, and need to cut a piece to cover this distance. However, you have to take off $\frac{3}{4}$ cm at one end, and $1\frac{1}{2}$ cm at the other end for the boards that will get screwed onto your long board. How long of a board must you cut? (2)

6) Choose two fractions **between 2 and 3**. (cannot use 2 or 3) Calculate their difference. (2)

7) Can you find two numbers **between 5 and 6** whose difference is bigger than one? Explain. (2)

8) How would you go about solving $\frac{a}{b} - \frac{c}{d}$ if

a) the denominators are the same (1)

b) the denominators are different (2)

9) Jimmy Jim-Bob wrote that $2\frac{1}{3} + \frac{2}{3} = 2\frac{3}{9}$. Explain the mistake and then correct it. (2)

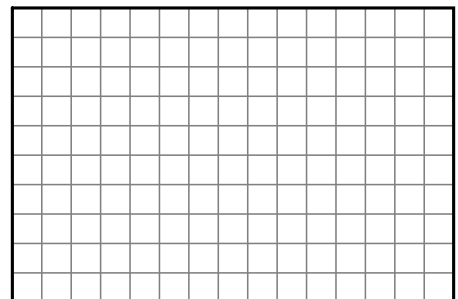
10) Johnny John Johnson wrote that $3\frac{5}{8} - 1\frac{6}{8} = 2\frac{7}{8}$. Explain the mistake and then correct it. (3)

11) This large rectangle is a floor plan of an office.

a) Shade these fractions for 2 rooms: (2)

Room 1: $\frac{1}{3}$ Room 2: $\frac{1}{5}$

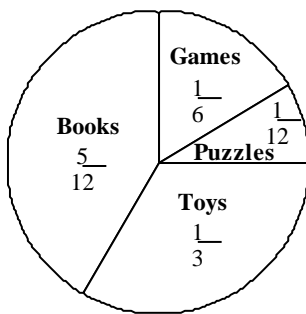
b) What fraction of the office is not used for the 2 rooms? (1)



12) A box contains 63 chocolates. Connie ate $\frac{1}{3}$ of the chocolates and Jorge ate $\frac{1}{7}$ of them.

- a) What fraction of the chocolates did Connie and Jorge eat? (2)
- b) How many chocolates did they eat? (2)

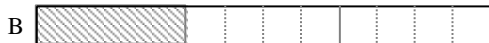
13) A charity collects gifts for children. The circle graph shows the gifts collected.



- a) What fraction of the gifts are books or games? Show your work. (2)
- b) What fraction of the gifts are toys or puzzles? Show your work. (2)
- c) Which 2 gifts make up $\frac{1}{2}$ of all the gifts? (1)

14) Let each strip represent 1.

- a) What fraction is modelled by each shaded part? (2)
- b) Write a subtraction equation for the difference of the 2 fractions. Solve it. (2)



15) J.B. argues that the **only** way to solve $\frac{5}{6} + \frac{1}{2}$ is to find the lowest common denominator. J.T. believes that you can find the sum even if you don't find the equivalent fractions with the **lowest** common denominator. Who is right? Explain as you solve the problem. (3)

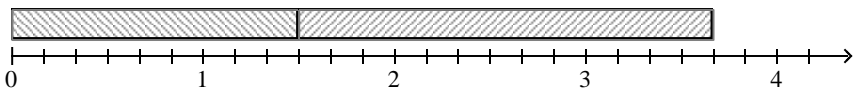
16) On Saturday, Wayne spent $\frac{3}{4}$ h in the gym. On Sunday, he spent $\frac{7}{12}$ h in the pool.

On Saturday, Jean spent $\frac{1}{2}$ h in the pool. On Sunday, she spent $\frac{5}{6}$ h in the gym.

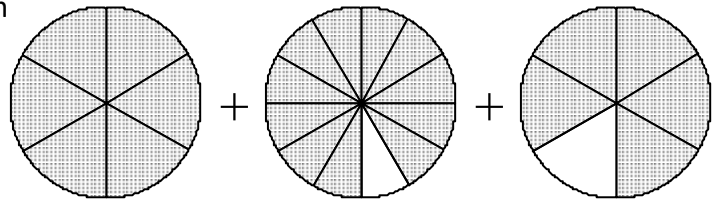
a) Who spent more time in the gym? How much more? (2)

b) Who spent more time in the pool? How much more? (2)

17) Write the addition equation modelled by the strips in this picture. (2)



18) Write the addition equation for the sum of the fractions modelled by these fraction circles. (2)



19) Replace each \square with a number to complete this addition equation.

Use the digits 2, 3, 4, and 5 only once. Verify that your answer is correct by solving the left hand side of the equation to see if you get $\frac{11}{10}$. (2)

$$\frac{\square}{\square} + \frac{\square}{\square} = \frac{11}{10}$$

20) Write $\frac{5}{6}$ as a sum of 3 fractions with different denominators. Solve to verify. (2)

21) A rectangle has length $\frac{3}{5}$ m and width $\frac{1}{3}$ m. What is the perimeter of the rectangle? (2)

22) Three people shared a cake. Which of the following statements are possible? Explain. (4)

a) Omar ate $\frac{5}{8}$, Henri ate $\frac{1}{8}$, and Ira ate $\frac{4}{12}$.

b) Omar ate $\frac{1}{5}$, Henri ate $\frac{2}{9}$, and Ira ate $\frac{1}{2}$.

23) Add a pair of brackets to make both sides equal (you solve what's in the brackets first according to the order of operations). Solve to verify. (3)

$$\frac{7}{8} - \frac{1}{4} - \frac{1}{8} = \frac{3}{4}$$

24) Find the sum of the fractions modelled by the 3 strips in this picture. (3)

