

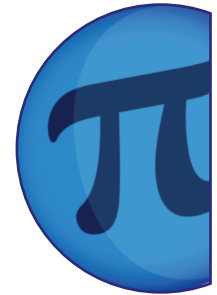


# Fractions: The Egyptians and Unit Fractions

NAME: .....

CLASS: .....

DATE: .....



## Basic

1) Identify the common denominator for the following groups of fractions:

a)  $\frac{1}{2}, \frac{1}{4}, \frac{1}{3}$

b)  $\frac{1}{6}, \frac{1}{8}, \frac{1}{12}$

c)  $\frac{1}{4}, \frac{1}{7}, \frac{1}{14}$

d)  $\frac{1}{25}, \frac{1}{75}, \frac{1}{5}$

2) Add and subtract the following fractions to find a common denominator:

a)  $\frac{1}{5} + \frac{1}{10}$

b)  $\frac{1}{8} + \frac{1}{6}$

c)  $\frac{2}{5} + \frac{3}{7}$

d)  $\frac{3}{7} + \frac{3}{4}$

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

f)  $\frac{7}{8} - \frac{3}{4}$

g)  $\frac{10}{12} - \frac{4}{6}$

h)  $\frac{10}{13} - \frac{4}{26}$

3) Change the following top heavy fractions into mixed numbers:

a)  $\frac{13}{2}$

b)  $\frac{13}{3}$

c)  $\frac{27}{5}$

d)  $\frac{15}{4}$

4) Change the following mixed numbers into top heavy fractions:

a)  $3\frac{1}{2}$

b)  $5\frac{2}{3}$

c)  $7\frac{3}{4}$

d)  $9\frac{2}{5}$

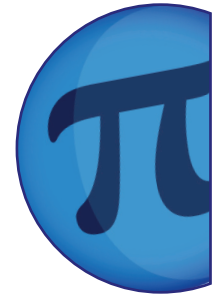


# Fractions: The Egyptians and Unit Fractions

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## Core

1) Add and subtract the following fractions to find a common denominator:

a)  $\frac{1}{4} + \frac{1}{2}$

b)  $\frac{1}{6} + \frac{2}{3}$

c)  $\frac{3}{8} + \frac{1}{4}$

d)  $\frac{4}{5} + \frac{1}{10}$

e)  $\frac{15}{20} - \frac{2}{10}$

f)  $\frac{8}{15} - \frac{2}{5}$

g)  $\frac{8}{9} - \frac{1}{3}$

h)  $\frac{20}{24} - \frac{4}{6}$

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

j)  $6\frac{5}{8} + 1\frac{1}{4}$

k)  $8\frac{3}{5} - 3\frac{1}{5}$

l)  $4\frac{2}{3} - 1\frac{1}{3}$

2) Put these fractions in order – smallest to largest – by expressing them over a common denominator:

a)  $\frac{3}{6}, \frac{4}{12}, \frac{1}{3}, \frac{3}{4}$

b)  $\frac{28}{32}, \frac{3}{16}, \frac{3}{4}, \frac{6}{8}$

c)  $\frac{36}{40}, \frac{17}{20}, \frac{4}{5}, \frac{3}{4}$

3) Change the following top heavy fractions into mixed numbers:

a)  $\frac{27}{12}$

b)  $\frac{13}{4}$

c)  $\frac{22}{5}$

d)  $\frac{30}{7}$

e)  $\frac{147}{12}$

4) Change the following mixed numbers into top heavy fractions:

a)  $7\frac{3}{4}$

b)  $8\frac{2}{3}$

c)  $12\frac{7}{8}$

d)  $9\frac{11}{12}$

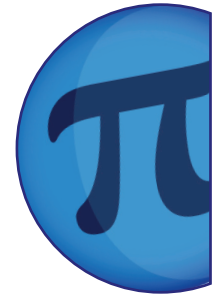


# Fractions: The Egyptians and Unit Fractions

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## Advanced

1) Add and subtract the following fractions to find a common denominator:

a)  $2\frac{2}{3} + 1\frac{1}{6}$

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

c)  $7\frac{9}{20} + 5\frac{41}{50}$

d)  $2\frac{11}{15} + 3\frac{7}{12}$

e)  $5\frac{2}{3} - \frac{1}{7}$

f)  $3\frac{9}{10} - 2\frac{5}{8}$

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

h)  $6\frac{3}{20} - 2\frac{13}{15}$

2) Write the following unit fractions as multiplicative inverses:

a)  $\frac{1}{5}$

b)  $\frac{1}{4}$

c)  $\frac{1}{8}$

d)  $\frac{1}{22}$

3) Use index laws to simplify the following:

a)  $a^4 \times a^3$

b)  $c^6 \times c^{-2}$

c)  $3m^4 \times 2m$

d)  $5d^{-3} \times 2d^4$

e)  $e^4 \div e^2$

f)  $g^{-2} \div g^{-6}$

g)  $20h^3 \div 4h^6$

h)  $18p^{-3} \div 3p^{-7}$



# Fractions: The Egyptians and Unit Fractions

## ANSWERS

### Basic

- |                      |                   |                    |                    |
|----------------------|-------------------|--------------------|--------------------|
| 1) a) 12             | b) 24             | c) 28              | d) 75              |
| 2) a) $\frac{3}{10}$ | b) $\frac{7}{24}$ | c) $\frac{29}{35}$ | d) $\frac{33}{28}$ |
| e) $\frac{3}{4}$     | f) $\frac{1}{8}$  | g) $\frac{1}{6}$   | h) $\frac{8}{13}$  |
| 3) a) $6\frac{1}{2}$ | b) $4\frac{1}{3}$ | c) $5\frac{2}{5}$  | d) $3\frac{3}{4}$  |
| 4) a) $\frac{7}{2}$  | b) $\frac{17}{3}$ | c) $\frac{31}{4}$  | d) $\frac{47}{5}$  |

### Core

- |  |  |   |                     |                    |
|--|--|---|---------------------|--------------------|
| 1) a) $\frac{3}{4}$  | b) $\frac{5}{6}$   | c) $\frac{5}{8}$  | d) $\frac{9}{10}$   |                    |
| e) $\frac{11}{20}$   | f) $\frac{2}{15}$  | g) $\frac{5}{9}$  | h) $\frac{1}{6}$    |                    |
| i) $4\frac{1}{4}$  | j) $7\frac{7}{8}$  | k) $5\frac{2}{5}$   | l) $3\frac{1}{3}$   |                    |
| 2) a) $\frac{4}{12}, \frac{4}{12}, \frac{6}{12}, \frac{9}{12}$ | b) $\frac{6}{32}, \frac{24}{32}, \frac{24}{32}, \frac{28}{32}$ | c) $\frac{30}{40}, \frac{32}{40}, \frac{34}{40}, \frac{36}{40}$ |                     |                    |
| 3) a) $2\frac{1}{4}$   | b) $3\frac{1}{4}$  | c) $4\frac{2}{5}$   | d) $4\frac{2}{7}$   | e) $12\frac{1}{4}$ |
| 4) a) $\frac{31}{4}$   | b) $\frac{26}{3}$  | c) $\frac{103}{8}$  | d) $\frac{119}{12}$ |                    |

### Advanced

- |                      |                     |                       |                     |
|----------------------|---------------------|-----------------------|---------------------|
| 1) a) $3\frac{5}{6}$ | b) $6\frac{7}{12}$  | c) $13\frac{27}{100}$ | d) $6\frac{19}{60}$ |
| e) $5\frac{11}{21}$  | f) $1\frac{11}{40}$ | g) $4\frac{11}{14}$   | h) $3\frac{17}{60}$ |



# Fractions: The Egyptians and Unit Fractions

## ANSWERS

Advanced continued...

2) a)  $5^{-1}$

b)  $4^{-1}$

c)  $8^{-1}$

d)  $22^{-1}$

3) a)  $a^7$

b)  $c^4$

c)  $6m^5$

d)  $10d^{-7}$

e)  $e^2$

f)  $g^4$

g)  $5h^{-3}$

h)  $6p^4$