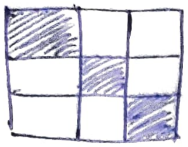
Exercise 16

1.

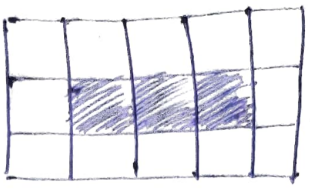
(a)



$\frac{1}{3}$ of 9

$= \frac{1}{3} \times 9^{3} = 3$

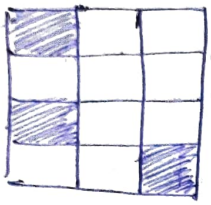
(b)



$\frac{1}{5}$ of 15

$= \frac{1}{5} \times 15^{3} = 3$

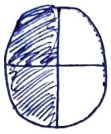
(c)



$\frac{1}{4}$ of $12 = \frac{1}{4} \times 12^{3} = 3$

2. (a)

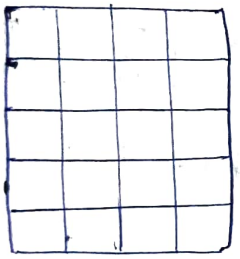
$1 = \frac{4}{4}$



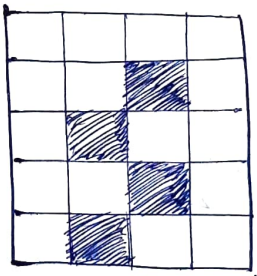
$\frac{1}{2} = \frac{4}{4} \times \frac{1}{2} = \frac{2}{4}$

$\frac{1}{2}$ of $\frac{1}{2} = \frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$

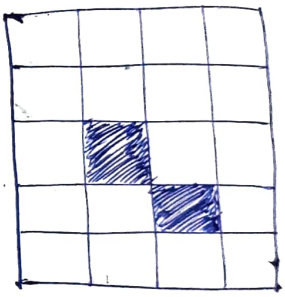
(b)



$1 = \frac{20}{20}$



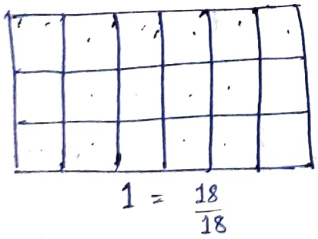
$\frac{1}{5} = \frac{1}{5} \times \frac{20}{20}^{4} = \frac{4}{20}$



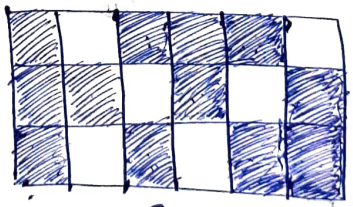
$\frac{1}{2}$ of $\frac{1}{5}$

$\frac{1}{2} \times \frac{1}{5} \times \frac{20}{20}^{2} = \frac{2}{20}$

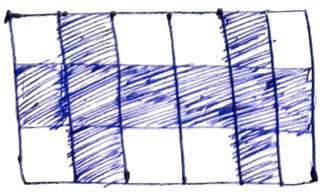
(c)



$1 = \frac{18}{18}$



$\frac{2}{3} = \frac{2}{3} \times \frac{18^{6}}{18} = \frac{12}{18}$



$\frac{5}{6}$ of $\frac{2}{3} = \frac{5}{6} \times \frac{2}{3} \times \frac{18^{6}}{18} = \frac{10}{18}$

3. (a) $\frac{1}{5} \times 2 = \frac{2}{5}$ (b) $\frac{1}{6} \times 5 = \frac{5}{6}$ (c) $\frac{1}{8} \times 7 = \frac{7}{8}$

(d) $\frac{3}{7}$ of 3
$= \frac{3}{7} \times 3 = \frac{9}{7}$

(e) $\frac{5}{32}$ of 9
$= \frac{5}{32} \times 9 = \frac{45}{32}$

(f) $\frac{15}{18}$ of 5
$= \frac{15}{18} \times 5 = \frac{75}{18} = \frac{25}{6}$

4. (a) $1\frac{1}{2}$ by 3
$= \frac{3}{2} \times 3 = \frac{9}{2}$

(b) $2\frac{1}{2}$ by 5
$= \frac{5}{2} \times 5 = \frac{25}{2}$

(c) $3\frac{1}{3}$ by 4
$= \frac{10}{3} \times 4 = \frac{40}{3}$

(d) $4\frac{2}{3}$ by 6
$= \frac{14}{3} \times 6^2 = 28$

5. (a) $\frac{1}{3}$ of $\frac{1}{4}$
$= \frac{1}{3} \times \frac{1}{4} = \frac{1}{12}$

(b) $\frac{1}{2}$ of $\frac{1}{5}$
$= \frac{1}{2} \times \frac{1}{5} = \frac{1}{10}$

(c) $\frac{1}{3}$ of $\frac{1}{5}$
$= \frac{1}{3} \times \frac{1}{5} = \frac{1}{15}$

6. (a) $\frac{2}{3} \times \frac{4}{5} = \frac{8}{15}$

(b) $\frac{3}{5} \times \frac{7}{8} = \frac{21}{40}$

(c) $\frac{2}{5} \times \frac{7}{9} = \frac{14}{45}$

(d) $\frac{3}{2}$ of $\frac{5}{7}$
$= \frac{3}{2} \times \frac{5}{7} = \frac{15}{14}$

(e) $\frac{1}{3}$ of $\frac{11}{18}$
$= \frac{1}{3} \times \frac{11}{18} = \frac{11}{54}$

(f) $\frac{4}{5}$ of 6
$= \frac{4}{5} \times 6 = \frac{24}{5}$

7. (a) $\frac{\cancel{3}^{3}}{\cancel{9}} \times \frac{5}{\cancel{12}_{4}} = \frac{15}{4}$

(b) $\frac{3}{\cancel{8}_{4}} \times \cancel{6}^{3} = \frac{9}{4}$

(c) $\frac{\cancel{15}^{3}}{1} \times \frac{3}{\cancel{25}_{5}} = \frac{9}{5}$

(d) $\frac{\cancel{10}^{5}}{1} \times \frac{7}{\cancel{24}_{12}} = \frac{35}{12}$

(e) $\frac{\cancel{26}^{2}}{11} \times \frac{8}{\cancel{9}_{3}} = \frac{16}{33}$

(f) $\frac{5}{7} \times \frac{\cancel{28}^{4}}{\cancel{15}_{3}} = \frac{4}{3}$

(g) $\frac{8}{\cancel{13}} \times \frac{\cancel{26}^{2}}{15} = \frac{16}{15}$

(h) $\frac{\cancel{32}^{16}}{\cancel{23}} \times \frac{\cancel{25}^{5}}{\cancel{54}_{9}} = \frac{80}{207}$

8. (a) $2\frac{2}{3} \times \frac{5}{12}$
$= \frac{\cancel{8}^{2}}{3} \times \frac{5}{\cancel{12}_{3}}$
$= \frac{10}{9}$

(b) $1\frac{3}{4} \times \frac{8}{15}$
$= \frac{7}{4} \times \frac{8^{2}}{15}$
$= \frac{14}{15}$

(c) $\frac{12}{25} \times 6\frac{2}{3}$
$= \frac{4}{5} \frac{\cancel{12}}{\cancel{25}} \times \frac{\cancel{20}^{4}}{3}$
$= \frac{16}{5}$

8. (d) $20 \times 3\frac{1}{5}$

$= {}^{4}\cancel{20} \times \frac{16}{\cancel{5}}$

$= 64$

(e) $1\frac{1}{4} \times 2\frac{2}{5}$

$= \frac{{}^{1}\cancel{5}}{\cancel{4}} \times \frac{\cancel{12}^{3}}{\cancel{5}}$

$= 3$

(f) $3\frac{3}{8} \times 5\frac{1}{9}$

$= \frac{{}^{3}\cancel{27}}{{}^{4}\cancel{8}} \times \frac{\cancel{46}^{23}}{\cancel{9}}$

$= \frac{69}{4}$

~~(e) $\frac{8}{10} \times 28$~~

(g) $5\frac{1}{7} \times 5\frac{1}{9}$

$= \frac{{}^{4}\cancel{36}}{7} \times \frac{46}{\cancel{9}}$

$= \frac{184}{7}$

(h) $8\frac{1}{8} \times 28$

$= \frac{65}{\cancel{8}_{2}} \times \cancel{28}^{7}$

$= \frac{455}{2}$

9. (a) $\frac{5}{9}$ of 105

$= \frac{5}{\cancel{9}_{3}} \times \cancel{105}^{35}$

$= \frac{175}{3}$

(b) $\frac{4}{7}$ of 42

$= \frac{4}{\cancel{7}} \times \cancel{42}^{6}$

$= 24$

(c) $\frac{3}{10}$ of $\frac{5}{6}$

$= \frac{\cancel{3}}{\cancel{10}_{2}} \times \frac{\cancel{5}}{\cancel{6}_{2}}$

$= \frac{1}{4}$