High School Mathematics Test 2013

Year 7

Fractions

Non Calculator Short Answer Section

Skills and Knowledge Assessed:

- Compare fractions using equivalence. Locate and represent positive and negative fractions and mixed numbers on a number line (ACMNA152)
- Solve problems involving addition and subtraction of fractions, including those with unrelated denominators (ACMNA153)
- Multiply and divide fractions and decimals using efficient written strategies and digital technologies (ACMNA154)
- Express one quantity as a fraction of another, with and without the use of digital technologies (ACMNA155)

Name_____

Answer all questions in the spaces provided on this test paper by:

Writing the answer in the box provided.

or

Shading in the bubble for the correct answer from the four choices provided.

Show any working out on the test paper.

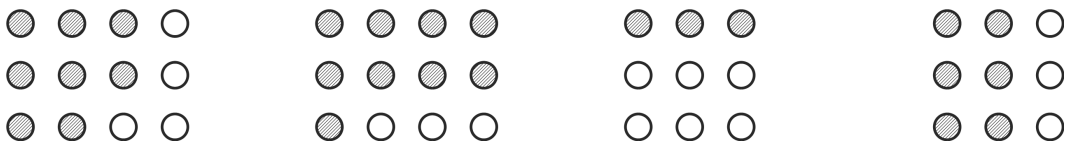
1. Which pair of fractions below has the same numerator but different denominators?

$\frac{2}{7}$ and $\frac{2}{3}$ ▢ $\frac{2}{5}$ and $\frac{4}{5}$ ▢ $\frac{1}{3}$ and $\frac{3}{5}$ ▢ $1\frac{3}{4}$ and $2\frac{2}{3}$ ▢

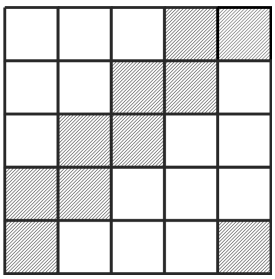
2. Which pair of fractions below includes one mixed number and one improper fraction?

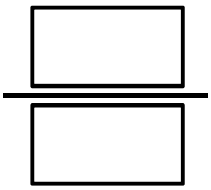
$\frac{2}{5}$ and $\frac{1}{3}$ ▢ $1\frac{2}{3}$ and $\frac{1}{3}$ ▢ $1\frac{2}{5}$ and $\frac{4}{3}$ ▢ $3\frac{3}{4}$ and $1\frac{1}{5}$ ▢

3. Which group below has $\frac{3}{4}$ of the dots shaded?

 ▢

4. Write the fraction that describes what part of the square is shaded. Write your answer in simplest form.





5. Complete the missing numbers to make pairs of equivalent fractions.

a) $\frac{24}{30} = \frac{\square}{5}$ b) $\frac{7}{12} = \frac{\square}{48}$

6. Kellie was asked to write four fractions that were equivalent to $\frac{12}{16}$.
Which of the four fractions she wrote below, is incorrect?

$\frac{3}{4}$ ☐ $\frac{6}{9}$ ☐ $\frac{9}{12}$ ☐ $\frac{15}{20}$ ☐

7. Write one of the symbols $<$, $>$ or $=$ in the boxes below to make true sentences.

a) $\frac{3}{4} \square \frac{7}{12}$ b) $\frac{27}{45} \square \frac{13}{20}$

8. Rewrite the numbers $\frac{5}{6}$, $\frac{1}{2}$, $\frac{1}{3}$ and $\frac{2}{5}$ in ascending order.

☐ ☐ ☐ ☐

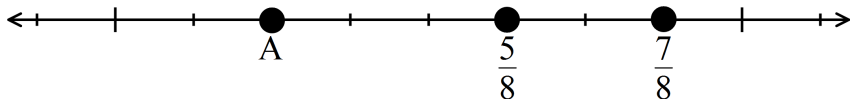
9. Write the reciprocal of these numbers.

a) $\frac{5}{8} =$ ☐ b) $2\frac{4}{5} =$ ☐

10. Lola was trying to write $\frac{17}{5}$ as a mixed number. She made four attempts.
Which was correct?

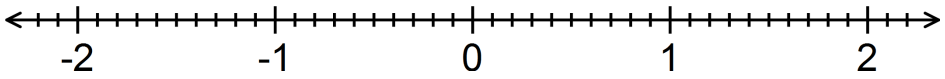
$1\frac{5}{7}$ ☐ $2\frac{2}{5}$ ☐ $3\frac{2}{5}$ ☐ $5\frac{1}{7}$ ☐

11. The numbers $\frac{5}{8}$ and $\frac{7}{8}$ are shown on the number line. What number is at the position A?



$\frac{1}{8}$ ☐ $\frac{1}{4}$ ☐ $\frac{3}{8}$ ☐ $\frac{1}{2}$ ☐

12. Mark the position of $-1\frac{3}{5}$ on the number line below.



13. Write the fractions below in simplest form.

a) $\frac{28}{32} = \frac{\square}{\square}$ b) $\frac{35}{56} = \frac{\square}{\square}$

14. What is the answer to $\frac{1}{12} + \frac{5}{12}$ in simplest form;

$\frac{6}{24}$ ☐ $\frac{1}{4}$ ☐ $\frac{1}{3}$ ☐ $\frac{1}{2}$ ☐

15. Complete, giving your answer in simplest form;

$\frac{1}{6} + \frac{2}{3} =$ $= \frac{\square}{\square}$

16. Find the answer to the addition, giving your answer in simplest form;

$\frac{3}{10} + \frac{5}{8} =$ $= \frac{\square}{\square}$

17. Complete, giving your answer in simplest form;

$\frac{17}{20} - \frac{9}{20} =$ $= \frac{\square}{\square}$

18. Complete, giving your answer in simplest form;

$\frac{5}{6} - \frac{2}{3} =$ $= \frac{\square}{\square}$

19. $\frac{9}{10} - \frac{3}{4} = ?$

$\frac{3}{40}$ ☐ $\frac{3}{20}$ ☐ $\frac{3}{10}$ ☐ $\frac{3}{5}$ ☐

20. Complete, giving your answer in simplest form;

$\frac{5}{6} - \frac{2}{5} =$ $=$ $\frac{\square}{\square}$

21. $\frac{7}{8} \times \frac{3}{4} = ?$

$\frac{7}{32}$ ☐ $\frac{21}{32}$ ☐ $1\frac{3}{4}$ ☐ $5\frac{1}{4}$ ☐

22. Complete, giving your answer in simplest form;

$\frac{5}{6} \times \frac{3}{8} =$ $=$ $\frac{\square}{\square}$

23. Simplify

$\frac{9}{10} \times \frac{5}{6} =$ $\frac{\square}{\square}$

24. Simplify $\frac{9}{8} \times \frac{10}{3}$.

$\frac{4}{15}$ ☐ $1\frac{8}{11}$ ☐ $3\frac{3}{4}$ ☐ $8\frac{2}{11}$ ☐

25. $\frac{4}{5} \div \frac{3}{4} = ?$

$\frac{3}{5}$ ☐ $1\frac{1}{20}$ ☐ $1\frac{1}{15}$ ☐ $1\frac{1}{3}$ ☐

26. Complete, giving your answer in simplest form;

$\frac{5}{6} \div \frac{3}{8} =$ $=$ $\frac{\square}{\square}$

27. Simplify

$\frac{2}{15} \div \frac{4}{9} =$ $\frac{\square}{\square}$

28. Simplify $\frac{7}{4} \div \frac{9}{8}$.

$1\frac{5}{9}$ ☐ $2\frac{1}{2}$ ☐ $3\frac{3}{4}$ ☐ $7\frac{1}{8}$ ☐

29. Levi travels to school by bus.
$\frac{1}{4}$ of the journey to school is on gravel roads and $\frac{2}{5}$ of the journey is on a freeway.
The remainder of the journey is on a sealed main road.
What fraction of the journey is on the sealed main road?

$\square$
$\square$

30. Find $\frac{4}{5}$ of 75 kg.

$\square$ kg.

31. Martin watches a movie that runs for $\frac{3}{4}$ of an hour.

Karen comes in after the movie has started and watches $\frac{2}{3}$ of the movie.

What fraction of an hour does Karen spend watching the movie?

$\frac{\square}{\square}$ of an hour.

32. Lucy has 48 pieces of jewellery on her dresser.
$\frac{3}{8}$ of the pieces are necklaces $\frac{1}{3}$ of them are bracelets and the rest are earrings.

How many are earrings?

$\square$

High School Mathematics Test 2013

Year 7

Fractions

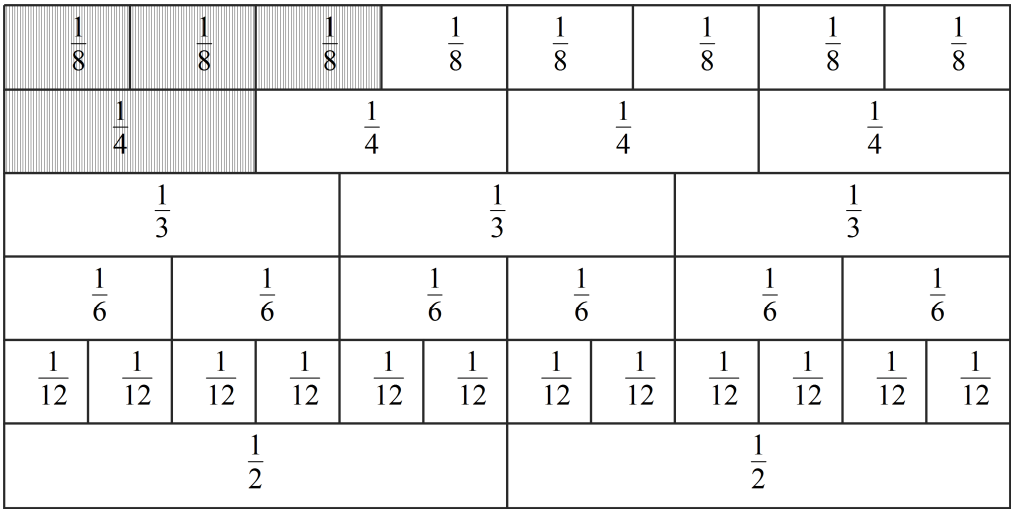
Non Calculator Longer Answer Section

Name_____

Write all working and answers in the spaces provided on this test paper.

Marks

1. The fraction wall below shows several equivalent fractions.



(a) The fractions $\frac{3}{8}$ and $\frac{1}{4}$ are shaded on the wall. **1**

Shade the fractions $\frac{2}{3}$ and $\frac{5}{6}$.

(b) Write two other fractions which are equivalent to $\frac{2}{3}$. **1**

……

(c) What is the value of $\frac{3}{8} + \frac{1}{4}$? **1**

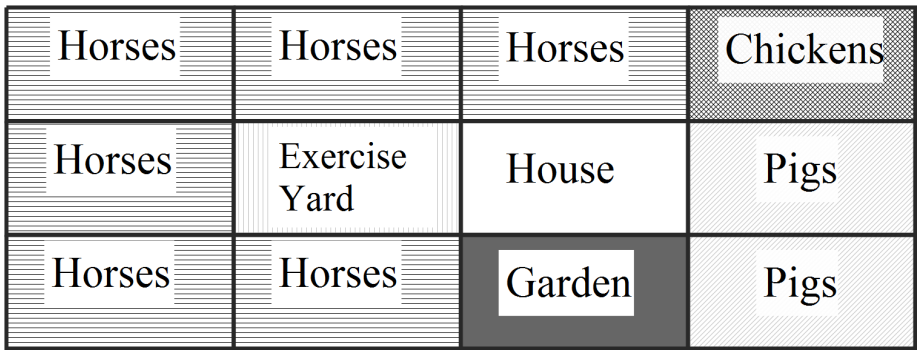
……

(d) What is the value of $\frac{5}{6} - \frac{2}{3}$? **1**

……

Marks

2. The diagram below shows Fiona's farm which is divided into paddocks of equal size which have different uses.



Write all fractions in simplest form.

(a) What fraction of the farm is taken up by the House paddock? **1**

……

(b) What fraction of the farm is used for Horses? **1**

……

(c) What fraction more of the farm is given to horses compared to chickens? **1**

……

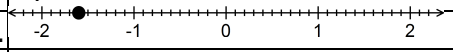
(d) How many times greater is the part of the farm given to horses than pigs? **1**

……

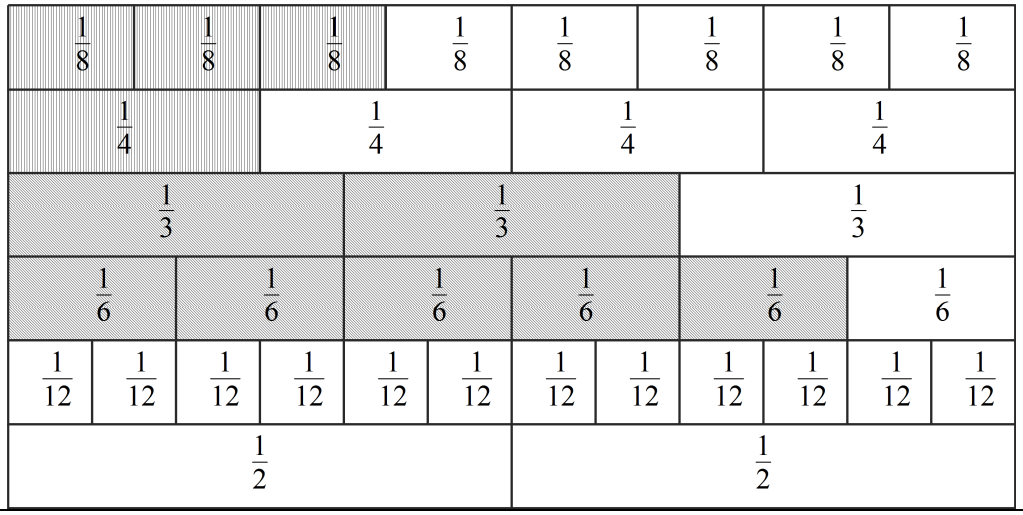
High School
Mathematics Test 2013
Fractions

ANSWERS

Short Answer Section

1.	$\frac{2}{7}$ and $\frac{2}{3}$
2.	$1\frac{2}{5}$ and $\frac{4}{3}$
3.	The 2nd one.
4.	$\frac{10}{25} = \frac{2}{5}$
5.	a) 4 b) 28
6.	$\frac{6}{9}$
7.	a) > b) <
8.	$\frac{1}{3}, \frac{2}{5}, \frac{1}{2}, \frac{5}{6}$
9.	a) $\frac{8}{5} = 1\frac{3}{5}$ b) $\frac{5}{14}$
10.	$3\frac{2}{5}$
11.	$\frac{1}{4}$
12.	
13.	a) $\frac{7}{8}$ b) $\frac{5}{8}$
14.	$\frac{1}{2}$
15.	$\frac{1}{6} + \frac{2}{3} = \frac{1}{6} + \frac{4}{6} = \frac{5}{6}$
16.	$\frac{3}{10} + \frac{5}{8} = \frac{12}{40} + \frac{25}{40} = \frac{37}{40}$
17.	$\frac{17}{20} - \frac{9}{20} = \frac{8}{20} = \frac{2}{5}$
18.	$\frac{5}{6} - \frac{2}{3} = \frac{5}{6} - \frac{4}{6} = \frac{1}{6}$

19.	$\frac{9}{10} - \frac{3}{4} = \frac{18}{20} - \frac{15}{20} = \frac{3}{20}$
20.	$\frac{5}{6} - \frac{2}{5} = \frac{25}{30} - \frac{12}{30} = \frac{13}{30}$
21.	$\frac{7}{8} \times \frac{3}{4} = \frac{21}{32}$
22.	$\frac{5}{6} \times \frac{3}{8} = \frac{15}{48} = \frac{5}{16}$
23.	$\frac{9}{10} \times \frac{5}{6} = \frac{45}{60} = \frac{3}{4}$
24.	$3\frac{3}{4}$
25.	$1\frac{1}{15}$
26.	$\frac{5}{6} \div \frac{3}{8} = \frac{5}{6} \times \frac{8}{3} = \frac{40}{18} = 2\frac{2}{9}$
27.	$\frac{2}{15} \div \frac{4}{9} = \frac{2}{15} \times \frac{9}{4} = \frac{18}{60} = \frac{3}{10}$
28.	$1\frac{5}{9}$
29.	$1 - \left(\frac{1}{4} + \frac{2}{5}\right) = 1 - \frac{13}{20} = \frac{7}{20}$
30.	$\frac{4}{5}$ of 75 kg $\frac{4}{5} \times \frac{75}{1} = 4 \times 15 = 60$ kg
31.	$\frac{2}{3}$ of $\frac{3}{4}$ of an hour $= \frac{1}{2}$ of an hour
32.	$\left[1 - \left(\frac{3}{8} + \frac{1}{3}\right)\right] \times 48 = \left[1 - \left(\frac{17}{24}\right)\right] \times 48$ $= \frac{7}{24} \times 48$ $= 14$ earrings

Longer Answer Section		
1.	(a) 	
	(b) $\frac{4}{6}$ and $\frac{8}{12}$. (or any other which is equivalent)	
	(c) $\frac{3}{8} + \frac{1}{4} = \frac{3}{8} + \frac{2}{8} = \frac{5}{8}$	
	(d) $\frac{5}{6} - \frac{2}{3} = \frac{5}{6} - \frac{4}{6} = \frac{1}{6}$	
2.	(a) $\frac{1}{12}$	
	(b) $\frac{6}{12} = \frac{1}{2}$	
	(c) $\frac{1}{2} - \frac{1}{12} = \frac{5}{12}$	
	(d) Pigs have $\frac{2}{12} = \frac{1}{6}$. Horses have $\frac{6}{12} = \frac{1}{2}$. Horses have **three times** as much space.	