

Ratio to Fraction - Worksheet

Skill

Group A - Convert a ratio to a fraction

Convert the following ratios to a fraction:

- | | | |
|---|---|---|
| 1) The ratio of red to yellow counters is 1: 4. What fraction of the counters are red? | 2) The ratio of green to white sweets is 4: 5. What fraction of the counters are green? | 3) The ratio of boys to girls is 3: 8. What fraction of the people are girls? |
| 4) The ratio of left- to right-handed people is 1: 9. What fraction of the people are right-handed? | 5) The ratio of hatchbacks to SUVs is 6: 7. What fraction of the cars are SUVs? | 6) The ratio of wind power to solar power is 12: 17. What fraction of the power is solar power? |
| 7) The ratio of fish and chips to the total number of ordered takeaways is 3: 13. What fraction of the takeaways are fish and chips? | 8) The ratio of monkeys to the total number of animals in a zoo is 5: 19. What fraction of the animals in the zoo are monkeys? | 9) The ratio of inhabited castles to the total number of castles is 3: 14. What fraction of castles are inhabited? |
| 10) The ratio of red to yellow to blue in a colour is 18: 21: 10. What fraction of the colour is blue? | 11) The ratio of prime numbers to integers 0 to 20 is 8: 21. What fraction of the set of numbers are not prime? | 12) The ratio of dogs to cats to horses is 4: 5: 2. What fraction of the animals are not horses? |
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Ratio to Fraction - Worksheet

Group B - Convert a fraction to a ratio

Convert the following fractions to a ratio:

- 1) $\frac{1}{5}$ of the population wear glasses. Write the ratio of people who wear glasses to the total number of people.
- 2) $\frac{2}{3}$ fish have a dorsal fin. Write the ratio of fish with a dorsal fin to the total number of fish.
- 3) $\frac{1}{6}$ people can write with either hand (ambidextrous). Write the ratio of people who are ambidextrous, to the people who are not ambidextrous.
- 4) $\frac{2}{31}$ people in a group have hayfever. What is the ratio of people in the group that do have hayfever to those who do not have hayfever?
- 5) $\frac{3}{8}$ adults can speak more than one language. Write the ratio of people who can only speak one language, to people who can speak more than one language.
- 6) $\frac{2}{3}$ students in a class watch sports. Write the ratio of students who do not watch sports, to the students who do watch sports.
- 7) A cocktail contains $\frac{1}{10}$ cranberry juice, $\frac{3}{10}$ orange juice, and $\frac{6}{10}$ water. Write the ratio of cranberry juice, to orange juice, to water.
- 8) $\frac{1}{5}$ of produce on an allotment are root vegetables, $\frac{2}{5}$ are potatoes, and the rest are fruit. Write the ratio of root veg to potatoes to fruit.
- 9) A bucket contains many golf balls. $\frac{3}{8}$ are white and the rest are pink. What is the ratio of white golf balls, to the total number of golf balls?
- 10) During one day, $\frac{7}{10}$ of a shop's sales are for health and beauty products. The rest was food and drink. Write the ratio of food and drink, to the total number of sales.
- 11) During the summer months, $\frac{5}{6}$ of the hours in a day are daylight. Write the ratio of the number of night time hours to the total number of hours in a day.
- 12) A cat sleeps for $\frac{5}{8}$ hours everyday and is exploring for $\frac{1}{4}$ of each day. Write the ratio of the number of hours the cat is awake but not exploring, to the total number of hours in each day.

Ratio to Fraction - Worksheet

Group C - Interpreting charts

Write the ratio required from each table or chart below in the simplest form:

1)

Sweets	Frequency
Fizzy	5
Cola	4
Boiled	2
Toffee	1

Write the ratio of cola sweets to fizzy sweets.

2)

Goals Scored	Frequency
0	3
1	7
2	4
3+	6

Write the ratio of 2 goals scored, to 3 + goals scored.

3)

Tickets	Frequency
Child	22
Adult	34
Over 65	14

Write the ratio of adult tickets to child tickets.

4)

Favourite Pet	Frequency
Dog	15
Cat	9
Fish	12
Hamster	8

Write the ratio of dogs to the total number of pets.

5)

Weight (kg)	Frequency
$50 \leq x < 60$	32
$60 \leq x < 70$	36
$70 \leq x < 80$	24
$x \geq 80$	12

Write the ratio of people over 80kg to the total number of people.

6)

Day	Distance (km)
Monday	4.8
Tuesday	6.3
Wednesday	5.4
Thursday	3.8
Friday	5.2

Write the ratio of kilometres walked on a Thursday to the total number of kilometres walked in the week.

7)

Car	Speed (mph)
A	38
B	39
C	41
D	37
E	35

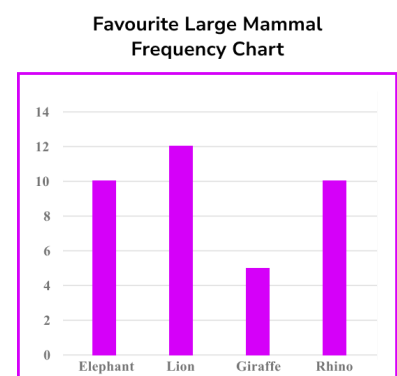
Write the ratio of cars that travelled over 37mph to the total number of cars.

8)

Points scored	Frequency
$0 \leq x < 5$	4
$5 \leq x < 10$	3
$10 \leq x < 15$	5
$15 \leq x < 20$	4

Write the ratio of people who scored 10 or more points, to the total number of people.

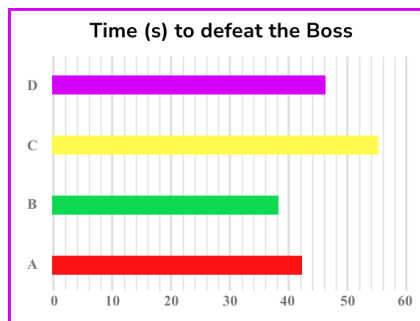
9)



Write the ratio of elephants to the total number of large mammals.

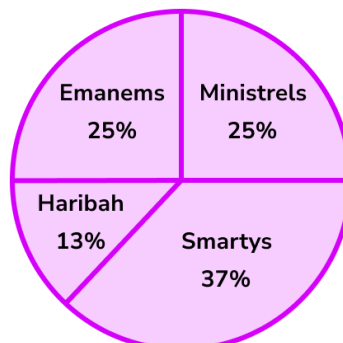
Ratio to Fraction - Worksheet

10)



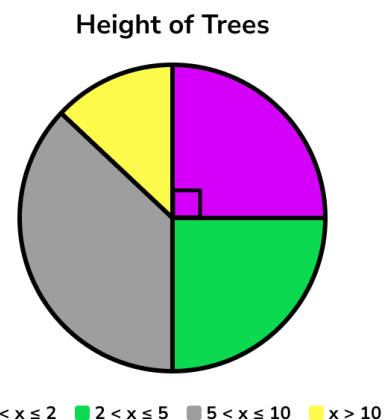
Write the ratio of players that took more than 50s to the number of players who took less than 50s to defeat the boss.

11)



Write the ratio of sweets that are not Smartys to the total number of sweets.

12)

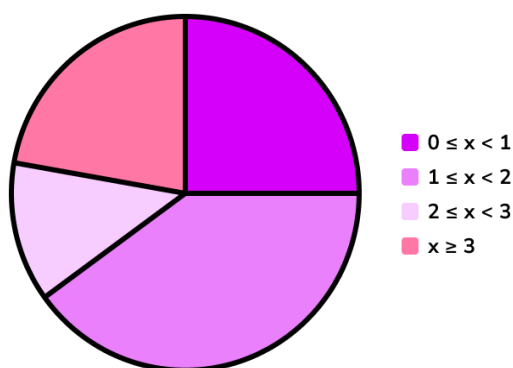


Write the ratio of trees that are $0 < x \leq 2m$ to the total number of trees in the survey.

Ratio to Fraction - Worksheet

Applied

- 1) (a) In class A the ratio of boys to girls is 4: 5.
What fraction of class A are girls?
- (b) In class B $\frac{2}{5}$ of the class are boys.
Write the ratio of boys to girls in class B.
- 2) (a) Below is a pie chart showing the number of hours spent watching TV every day by 1200 people.



What is the ratio of people who watched $0 \leq x < 1$ hour of television every day to the total number of people asked?

- (b) Given that $\frac{2}{5}$ of people watched $1 \leq x < 2$, what ratio of people to the total number of people watched 2 or more hours of television per day, in the simplest form.
- 3) (a) Cube A has the volume of 64cm^3 . Each side length is divided by 2. Write the ratio of the old to the new volume of cube A in the simplest form.
- (b) What fraction of the original is the new volume of cube A?
- 4) (a) On a school trip the ratio of adults to students is 1: 10.
All of the students are in year 10 or year 11.
The ratio of year 10 to year 11 is 1: 4.

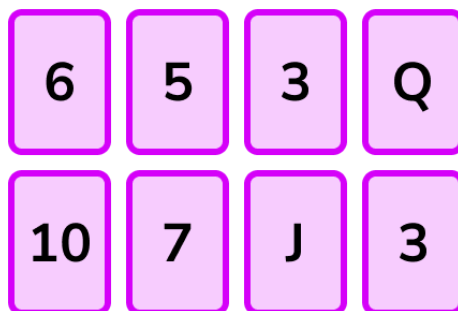
What fraction of all the people on the trip are year 11 students?

- (b) In a cinema the ratio of adults to children is 2: 3.
The ratio of boys to girls that are children is 5: 2.

What fraction of all the people in the cinema are girls?

Ratio to Fraction - Exam Questions

- 1) (a) 8 cards are taken from a pack of cards. Write the ratio of chosen cards that have a value of less than 6 to the total number of cards chosen.

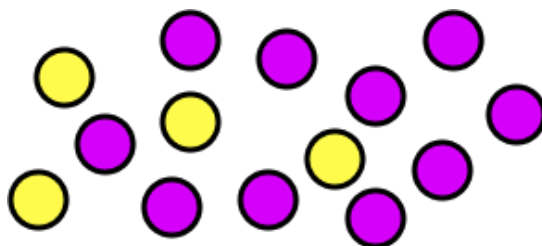


.....
(1)

- (b) The ratio of picture cards to non-picture cards in a full deck of cards is 3: 10. What fraction of the deck are not picture cards?

.....
(2)
(3 marks)

- 2) (a) Below is a diagram showing purple and yellow counters.



Harry says “the ratio of purple counters to the total number of counters is 5: 2”. Why must Harry be wrong?

.....
(1)

- (b) Write 3 correct ratios using the diagram in part a).

.....
(3)
(4 marks)

Ratio to Fraction - Exam Questions

- 3) (a) Half of the fish in a tank are rainbow fish.
20% are gouramis and the rest are corydoras.

Write the ratio of rainbow fish to gouramis to corydoras in the simplest form.

.....
(4)

- (b) Originally there were 20 fish. Three more rainbow fish are added. What fraction of the fish in the tank are now rainbow fish?

.....
(2)
(6 marks)

-
- 4) (a) A bag contains red, blue and yellow counters. There are 26 counters.
11 of the counters are red. The ratio of blue to yellow counters is 3: 2.

What fraction of the counters are yellow?
Give your answer in its simplest terms.

.....
(5)

- (b) 2 more counters are added.
The new ratio of counters is 6: 5: 3.
What colour(s) are the two new counters?

.....
(3)
(8 marks)

Ratio to Fraction - Answers

	Question	Answer
	Skill Questions	
Group A	<p>Convert the following ratios to a fraction:</p> <p>1) The ratio of red to yellow counters is 1: 4. What fraction of the counters are red?</p> <p>2) The ratio of green to white sweets is 4: 5. What fraction of the counters are green?</p> <p>3) The ratio of boys to girls is 3: 8. What fraction of the people are girls?</p> <p>4) The ratio of left- to right-handed people is 1: 9. What fraction of the people are right-handed?</p> <p>5) The ratio of hatchbacks to SUVs is 6: 7. What fraction of the cars are SUVs?</p> <p>6) The ratio of wind power to solar power is 12: 17. What fraction of the power is solar power?</p> <p>7) The ratio of fish and chips to the total number of ordered takeaways is 3: 13. What fraction of the takeaways are fish and chips?</p> <p>8) The ratio of monkeys to the total number of animals in a zoo is 5: 19. What fraction of the animals in the zoo are monkeys?</p> <p>9) The ratio of inhabited castles to the total number of castles is 3: 14. What fraction of castles are inhabited?</p> <p>10) The ratio of red to yellow to blue in a colour is 18: 21: 10. What fraction of the colour is blue?</p> <p>11) The ratio of prime numbers to integers 0 to 20 is 8: 21. What fraction of the set of numbers are not prime?</p> <p>12) The ratio of dogs to cats to horses is 4: 5: 2. What fraction of the animals are not horses?</p>	<p>1) $\frac{1}{5}$</p> <p>2) $\frac{4}{9}$</p> <p>3) $\frac{8}{11}$</p> <p>4) $\frac{9}{10}$</p> <p>5) $\frac{7}{13}$</p> <p>6) $\frac{17}{29}$</p> <p>7) $\frac{3}{13}$</p> <p>8) $\frac{5}{19}$</p> <p>9) $\frac{3}{14}$</p> <p>10) $\frac{10}{49}$</p> <p>11) $\frac{13}{21}$</p> <p>12) $\frac{9}{11}$</p>

Ratio to Fraction - Answers

Group B	<p>Convert the following fractions to a ratio:</p> <p>1) $\frac{1}{5}$ of the population wear glasses. Write the ratio of people who wear glasses to the total number of people.</p> <p>2) $\frac{2}{3}$ fish have a dorsal fin. Write the ratio of fish with a dorsal fin to the total number of fish.</p> <p>3) $\frac{1}{6}$ people can write with either hand (ambidextrous). Write the ratio of people who are ambidextrous, to the people who are not ambidextrous.</p> <p>4) $\frac{2}{31}$ people in a group have hayfever. What is the ratio of people in the group that do have hayfever to those who do not have hayfever?</p> <p>5) $\frac{3}{8}$ adults can speak more than one language. Write the ratio of people who can only speak one language, to people who can speak more than one language.</p> <p>6) $\frac{2}{3}$ students in a class watch sports. Write the ratio of students who do not watch sports, to the students who do watch sports.</p> <p>7) A cocktail contains $\frac{1}{10}$ cranberry juice, $\frac{3}{10}$ orange juice, and $\frac{6}{10}$ water. Write the ratio of cranberry juice, to orange juice, to water.</p> <p>8) $\frac{1}{5}$ of produce on an allotment are root vegetables, $\frac{2}{5}$ are potatoes, and the rest are fruit. Write the ratio of root veg to potatoes to fruit.</p> <p>9) A bucket contains many golf balls. $\frac{3}{8}$ are white and the rest are pink. What is the ratio of white golf balls, to the total number of golf balls?</p> <p>10) During one day, $\frac{7}{10}$ of a shop's sales are for health and beauty products. The rest was food and drink. Write the ratio of food and drink, to the total number of sales.</p>	<p>1) 1: 5</p> <p>2) 2: 3</p> <p>3) 1: 5</p> <p>4) 2: 29</p> <p>5) 5: 3</p> <p>6) 1: 2</p> <p>7) 1: 3: 6</p> <p>8) 1: 2: 2</p> <p>9) 3: 8</p> <p>10) 3: 10</p>
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Ratio to Fraction - Answers

Group B contd	<p>11) During the summer months, $\frac{5}{6}$ of the hours in a day are daylight. Write the ratio of the number of night time hours to the total number of hours in a day.</p> <p>12) A cat sleeps for $\frac{5}{8}$ hours everyday and is exploring for $\frac{1}{4}$ of each day. Write the ratio of the number of hours the cat is awake but not exploring, to the total number of hours in each day.</p>	<p>11) 1: 6</p> <p>12) 1: 8</p>																																						
Group C	<p>Write the ratio required from each table or chart below in the simplest form:</p> <p>1) Write the ratio of cola sweets to fizzy sweets.</p> <table><thead><tr><th>Sweets</th><th>Frequency</th></tr></thead><tbody><tr><td>Fizzy</td><td>5</td></tr><tr><td>Cola</td><td>4</td></tr><tr><td>Boiled</td><td>2</td></tr><tr><td>Toffee</td><td>1</td></tr></tbody></table> <p>2) Write the ratio of 2 goals scored, to 3 + goals scored.</p> <table><thead><tr><th>Goals Scored</th><th>Frequency</th></tr></thead><tbody><tr><td>0</td><td>3</td></tr><tr><td>1</td><td>7</td></tr><tr><td>2</td><td>4</td></tr><tr><td>3+</td><td>6</td></tr></tbody></table> <p>3) Write the ratio of adult tickets to child tickets.</p> <table><thead><tr><th>Tickets</th><th>Frequency</th></tr></thead><tbody><tr><td>Child</td><td>22</td></tr><tr><td>Adult</td><td>34</td></tr><tr><td>Over 65</td><td>14</td></tr></tbody></table> <p>4) Write the ratio of dogs to the total number of pets.</p> <table><thead><tr><th>Favourite Pet</th><th>Frequency</th></tr></thead><tbody><tr><td>Dog</td><td>15</td></tr><tr><td>Cat</td><td>9</td></tr><tr><td>Fish</td><td>12</td></tr><tr><td>Hamster</td><td>8</td></tr></tbody></table>	Sweets	Frequency	Fizzy	5	Cola	4	Boiled	2	Toffee	1	Goals Scored	Frequency	0	3	1	7	2	4	3+	6	Tickets	Frequency	Child	22	Adult	34	Over 65	14	Favourite Pet	Frequency	Dog	15	Cat	9	Fish	12	Hamster	8	<p>1) 4: 5</p> <p>2) 4: 6 = 2: 3</p> <p>3) 34: 22 = 17: 11</p> <p>4) 15: 44</p>
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Ratio to Fraction - Answers

Group C

5) Write the ratio of people over $80kg$ to the total number of people.

Weight (kg)	Frequency
$50 \leq x < 60$	32
$60 \leq x < 70$	36
$70 \leq x < 80$	24
$x \geq 80$	12

5) 12: 104
= 3: 26

6) Write the ratio of kilometres walked on a Thursday to the total number of kilometres walked in the week.

Day	Distance (km)
Monday	4.8
Tuesday	6.3
Wednesday	5.4
Thursday	3.8
Friday	5.2

6) 3.8: 25.5
= 38: 255

7) Write the ratio of cars that travelled over $37mph$ to the total number of cars.

Car	Speed (mph)
A	38
B	39
C	41
D	37
E	35

7) 3: 5

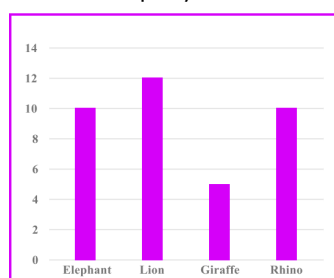
8) Write the ratio of people who scored 10 or more points, to the total number of people.

Points scored	Frequency
$0 \leq x < 5$	4
$5 \leq x < 10$	3
$10 \leq x < 15$	5
$15 \leq x < 20$	4

8) 9: 16

9) Write the ratio of elephants to the total number of large mammals.

Favourite Large Mammal
Frequency Chart

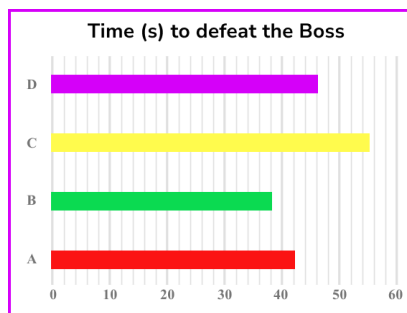


9) 10: 37

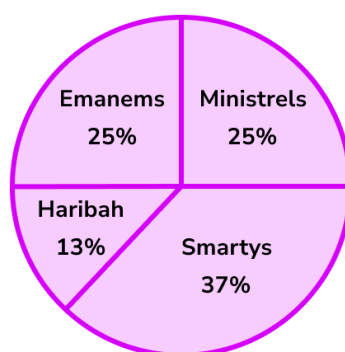
Ratio to Fraction - Answers

Group C

10) Write the ratio of players that took more than 50s to the number of players who took less than 50s to defeat the boss.

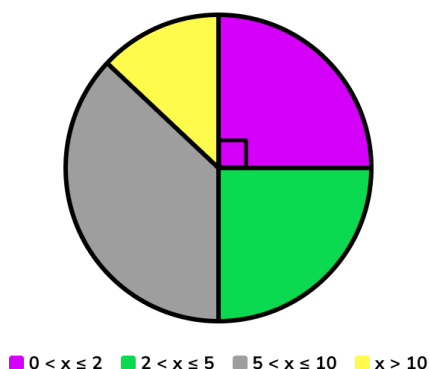


11) Write the ratio of sweets that are not Smartys to the total number of sweets.



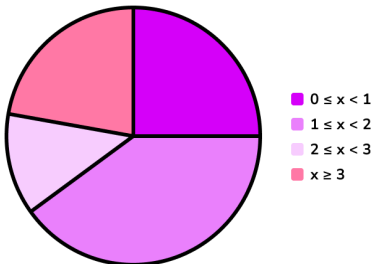
12) Write the ratio of trees that are $0 < x \leq 2m$ to the total number of trees in the survey.

Height of Trees

**10)** 1: 3**11)** 63: 100

12) 90: 360
= 1: 4

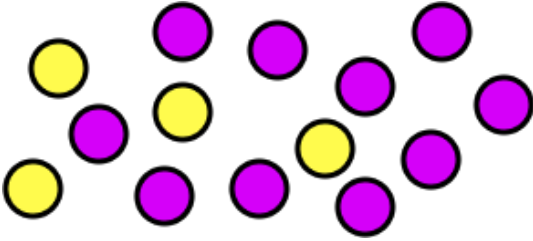
Ratio to Fraction - Answers

	Question	Answer
	Applied Questions	
1)	<p>a) In class A the ratio of boys to girls is 4: 5. What fraction of class A are girls?</p> <p>b) In class B $\frac{2}{5}$ of the class are boys. Write the ratio of boys to girls in class B.</p>	<p>a) $\frac{5}{9}$</p> <p>b) $B: G = 2: 3$</p>
2)	<p>a) Below is a pie chart showing the number of hours spent watching TV every day by 1200 people.</p>  <p>What is the ratio of people who watched $0 \leq x < 1$ hour of television every day to the total number of people asked?</p> <p>b) Given that $\frac{2}{5}$ of people watched $1 \leq x < 2$, what ratio of people to the total number of people watched 2 or more hours of television per day, in the simplest form.</p>	<p>a) 1: 4</p> <p>b) $\frac{2}{5} + \frac{1}{4} = \frac{13}{20}$ $1 - \frac{13}{20} = \frac{7}{20}$ 7: 20</p>
3)	<p>a) Cube A has the volume of 64cm^3. Each side length is divided by 2. Write the ratio of the old to the new volume of cube A in the simplest form.</p> <p>b) What fraction of the original is the new volume of cube A?</p>	<p>a) 8: 1</p> <p>b) $\frac{1}{8}$</p>

Ratio to Fraction - Answers

4)	<p>a) On a school trip the ratio of adults to students is 1: 10. All of the students are in year 10 or year 11. The ratio of year 10 to year 11 is 1: 4.</p> <p>What fraction of all the people on the trip are year 11 students?</p> <p>b) In a cinema the ratio of adults to children is 2: 3. The children are either boys or girls. The ratio of boys to girls is 5: 2.</p> <p>What fraction of all the people in the cinema are girls?</p>	<p>a) Need to make students 10 parts $Y10: Y11 = 1: 4 = 2: 8$</p> <p><i>Adults: Y10: Y11</i> $= 1: 2: 8$ Year 11 = $\frac{8}{11}$</p> <p>b) Need to make children's number of parts a multiple of 3</p> <p>$B: G = 5: 2 = 15: 6$ Children are 21 parts</p> <p>$A: C = 2: 3 = 14: 21$</p> <p><i>Adults: boys: girls</i> $= 14: 15: 6$</p> <p>Girls = $\frac{6}{35}$</p>
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Ratio to Fraction - Mark Scheme

	Question	Answer	
	Exam Questions		
1) (a)	<p>8 cards are taken from a pack of cards. Write the ratio of chosen cards that have a value of less than 6 to the total number of cards chosen.</p> <div style="display: flex; flex-wrap: wrap; justify-content: center; gap: 10px;"> <div style="border: 2px solid #800080; padding: 10px; margin: 5px;">6</div> <div style="border: 2px solid #800080; padding: 10px; margin: 5px;">5</div> <div style="border: 2px solid #800080; padding: 10px; margin: 5px;">3</div> <div style="border: 2px solid #800080; padding: 10px; margin: 5px;">Q</div> <div style="border: 2px solid #800080; padding: 10px; margin: 5px;">10</div> <div style="border: 2px solid #800080; padding: 10px; margin: 5px;">7</div> <div style="border: 2px solid #800080; padding: 10px; margin: 5px;">J</div> <div style="border: 2px solid #800080; padding: 10px; margin: 5px;">3</div> </div>	(a) 3: 8	(1)
(b)	The ratio of picture cards to non-picture cards in a full deck of cards is 3: 10. What fraction of the deck are not picture cards?	(b) $\frac{10}{10+3}$ $\frac{10}{13}$	(1) (1)
2) (a)	<p>Below is a diagram showing purple and yellow counters.</p>  <p>Harry says “the ratio of purple counters to the total number of counters is 5: 2”. Why must Harry be wrong?</p>	(a) The total number of counters must be greater than or equal to the number of purple counters so the ratio is not in the correct order.	(1)
(b)	Write 3 correct ratios using the diagram in part a).	(b) $Y: P = 4: 10$ or $2: 5$ $P: Total = 10: 14$ or $5: 7$ $Y: Total = 4: 14$ or $2: 7$	(1) (1) (1)
3) (a)	<p>Half of the fish in a tank are rainbow fish. 20% are gouramis and the rest are corydoras.</p> <p>Write the ratio of rainbow fish to gouramis to corydoras in the simplest form.</p>	(a) $\frac{1}{2} + \frac{1}{5} = \frac{5}{10} + \frac{2}{10}$ $= \frac{7}{10}$ $10 - 7 = 3$ $5: 2: 3$	(1) (1) (1) (1)
(b)	Originally there were 20 fish. Three more rainbow fish are added. What fraction of the fish in the tank are now rainbow fish?	(b) $20 \div 2 + 3 = 13$ $\frac{13}{23}$	(1) (1)

Ratio to Fraction - Mark Scheme

4) (a)	A bag contains red, blue and yellow counters. There are 26 counters. 11 of the counters are red. The ratio of blue to yellow counters is 3: 2. What fraction of the counters are yellow? Give your answer in its simplest terms.	(a) $26 - 11 = 15$ $15 \div (3 + 2) = 3$ $2 \times 3 = 6$ $\frac{6}{26}$ $\frac{3}{13}$	(1) (1) (1) (1) (1)
(b)	2 more counters are added. The new ratio of counters is 6: 5: 2. What colour(s) are the two new counters?	(b) $28 \div (6 + 5 + 3) = 2$ $6: 5: 3 = 12: 10: 6$ Original 11: 9: 6 1 red, 1 blue	(1) (1) (1)

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