



## Ratios, Rates, and Proportional Reasoning

1 What is the wage in \$/hr?

**total hours: 11.75 hrs total earnings:**  
**18.5 \$**

- |              |              |
|--------------|--------------|
| A 1.57 \$/hr | B 0.18 \$/hr |
| C 0.43 \$/hr | D 1.32 \$/hr |

2 What is the price per kg of this item?

9 kg  
\$27.00

- |             |
|-------------|
| A \$2.00/kg |
| B \$4.00/kg |
| C \$3.00/kg |
| D \$1.00/kg |

3 What is the price per kg of this item?

1  $\frac{3}{8}$  kg  
\$0.50

- |             |
|-------------|
| A \$1.86/kg |
| B \$1.39/kg |
| C \$0.89/kg |
| D \$0.36/kg |

4 What is the price per kg of this item?

0.5 kg  
\$3.00

- |             |
|-------------|
| A \$7.50/kg |
| B \$4.00/kg |
| C \$7.00/kg |
| D \$6.00/kg |

5 Compare these fractions and choose the right equality operator

$$\frac{6}{7} \bigcirc \frac{11}{21}$$

<, >, or =?

- |     |     |
|-----|-----|
| A > | B = |
| C < |     |

6 Set this fraction comparison problem up correctly

$$\frac{23}{11} \bigcirc 2\frac{1}{5}$$

- |                                            |                                           |
|--------------------------------------------|-------------------------------------------|
| A $1\frac{55}{60} \bigcirc 2\frac{12}{60}$ | B $2\frac{5}{55} \bigcirc 2\frac{11}{55}$ |
| C $2\frac{5}{55} \bigcirc 2\frac{22}{55}$  |                                           |

7 Which option has the lowest price per kg?

5.25 kg  
\$4.25

6.25 kg  
\$3.25

- |     |
|-----|
| A P |
| B Q |

8 Which option has the lowest price per kg?

$\frac{1}{4}$  kg  
\$4.00

$\frac{1}{2}$  kg  
\$5.00

- |     |
|-----|
| A Q |
| B P |



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**9** Which option has the lowest price per kg?

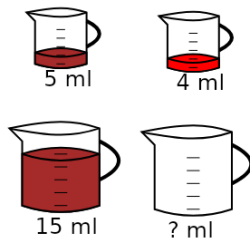
|        |          |
|--------|----------|
| 2 kg   | <b>P</b> |
| \$6.00 |          |
| 1 kg   | <b>Q</b> |
| \$7.00 |          |

|   |   |
|---|---|
| A | P |
| B | Q |

**10** Bacteria A moves 3mm in 6d. Bacteria B moves 4mm in 5d. Which is faster?

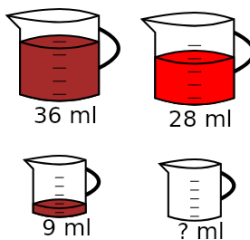
|            |            |
|------------|------------|
| A          | B          |
| Bacteria A | Bacteria B |

**11** This sundae needs 4 ml of strawberry for every 5 ml of chocolate. How much strawberry is needed if you have 15 ml of chocolate



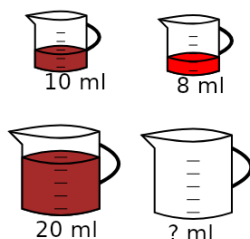
|   |       |
|---|-------|
| A | 12 ml |
| B | 7 ml  |
| C | 10 ml |
| D | 4 ml  |

**12** This sundae needs 28 ml of strawberry for every 36 ml of chocolate. How much strawberry is needed if you have 9 ml of chocolate



|   |      |
|---|------|
| A | 7 ml |
| B | 1 ml |
| C | 5 ml |
| D | 6 ml |

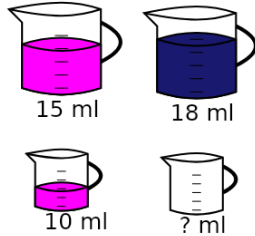
**13** This sundae needs 8 ml of strawberry for every 10 ml of chocolate. How much strawberry is needed if you have 20 ml of chocolate



|   |       |
|---|-------|
| A | 15 ml |
| B | 16 ml |
| C | 11 ml |
| D | 20 ml |

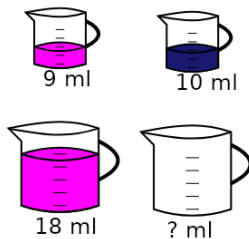
**Ratios, Rates, and Proportional Reasoning**

- 14** This paint color needs 18 ml of blue for every 15 ml of magenta. How much blue is needed if you have 10 ml of magenta



|   |       |
|---|-------|
| A | 12 ml |
| B | 7 ml  |
| C | 13 ml |
| D | 18 ml |

- 15** This paint color needs 10 ml of blue for every 9 ml of magenta. How much blue is needed if you have 18 ml of magenta



|   |          |
|---|----------|
| A | 20 ml    |
| B | 19.75 ml |
| C | 21.25 ml |
| D | 20.25 ml |

- 16** What is the unit price in \$/kg?

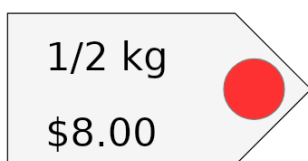
**total weight: 6 kg total cost: 13.5 \$**

|                |                 |
|----------------|-----------------|
| A<br>0.5 \$/kg | B<br>4 \$/kg    |
| C<br>2.5 \$/kg | D<br>2.25 \$/kg |

- 17** Horse A trots 5dam in 8min. Horse B trots 2dam in 0.12hr. Which is faster?

|                  |                  |
|------------------|------------------|
| A<br><br>Horse B | B<br><br>Horse A |
|------------------|------------------|

- 18** What is the price per kg of this item?



|                 |
|-----------------|
| A<br>\$17.00/kg |
| B<br>\$16.00/kg |
| C<br>\$17.75/kg |
| D<br>\$15.50/kg |

- 19** Convert this rate from minutes per yard to seconds per foot. There are 3 ft in every yrd

**A caterpillar takes 2 minutes to move a yard. How long, in seconds, does it take to move a foot?**

|                                   |                                  |
|-----------------------------------|----------------------------------|
| A<br>$\frac{120}{3} \frac{s}{ft}$ | B<br>$\frac{6}{65} \frac{s}{ft}$ |
|-----------------------------------|----------------------------------|

**Ratios, Rates, and Proportional Reasoning**

- 20** Car A drives 50m in 8s. Car B drives 300dm in 6s. Which is faster?

A

Car B

B

Car A

- 21** Bug A crawls 40m in 60min. Bug B crawls 5dam in 0.0556d. Which is faster?

A

Bug A

B

Bug B

- 22** A bug crawls 20m in 4min. How fast is this in m/hr?

A

3 m/hr

B

3,000 m/hr

C

1.3 m/hr

D

300 m/hr

- 23** A bug crawls 800cm in 40min. How fast is this in m/s?

A

0.1 m/s

B

0.4 m/s

C

19,200 m/s

D

0.003333 m/s

- 24** Convert this rate from minutes per yard to seconds per foot. There are  $\frac{1}{3}$  yrd in every ft.  
A caterpillar takes  $\frac{7}{5}$  minutes to move a yard.  
How long, in seconds, does it take to move a foot?

$$\frac{7 \text{ min}}{5 \text{ yrd}} \text{ is } ? \frac{s}{ft}$$

A

$$\frac{24 \text{ s}}{300 \text{ ft}}$$

B

$$\frac{15 \text{ s}}{424 \text{ ft}}$$

C

$$\frac{300 \text{ s}}{21 \text{ ft}}$$

D

$$\frac{420 \text{ s}}{15 \text{ ft}}$$

E

$$\frac{15 \text{ s}}{420 \text{ ft}}$$

F

$$\frac{21 \text{ s}}{300 \text{ ft}}$$

- 25** A bacteria moves 1,600dm in 80d. How fast is this in km/d?

A

0.002 km/d

B

0.3 km/d

C

0.4 km/d

D

12.8 km/d

- 26** What is the (simplest) ratio of cats to dogs?  
cats : 2  
dogs : 3

A

5:6

B

3:9

C

2:3

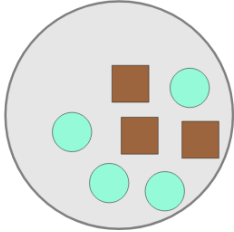
D

6:2



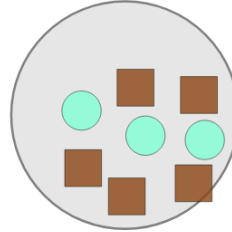
## Ratios, Rates, and Proportional Reasoning

**27** What is the (simplest) ratio of circles to squares?



- |   |      |
|---|------|
| A | 1:5  |
| B | 5:12 |
| C | 2:5  |
| D | 4:3  |

**28** What is the (simplest) ratio of circles to ALL shapes?



- |   |      |
|---|------|
| A | 6:10 |
| B | 3:8  |
| C | 8:15 |
| D | 6:1  |

**29** What is the (simplest) ratio of cats to ALL pets?

cats : 9  
dogs : 12

- |   |      |   |      |
|---|------|---|------|
| A | 7:15 | B | 3:7  |
| C | 10:4 | D | 12:5 |

**30** What line equation would create this set of X, Y values?

| X | Y    |
|---|------|
| 0 | 0    |
| 1 | 0.33 |
| 2 | 0.67 |
| 3 | 1    |
| 4 | 1.33 |

- |   |                    |   |                    |
|---|--------------------|---|--------------------|
| A | $y = \frac{1}{3}x$ | B | $y = \frac{3}{2}x$ |
| C | $y = -3x$          |   |                    |

**31** What rule turns each input into its output?

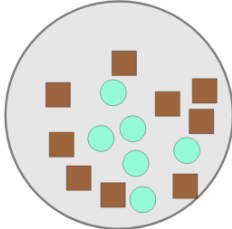
| Input | Output |
|-------|--------|
| 1     | 3      |
| 4     | 12     |
| 6     | 18     |
| 7     | 21     |
| 8     | 24     |

- |   |                |
|---|----------------|
| A | multiply by 11 |
| B | multiply by 3  |
| C | divide by 5    |
| D | multiply by 8  |



## Ratios, Rates, and Proportional Reasoning

**32** What is the (simplest) ratio of circles to squares?



|   |     |
|---|-----|
| A | 8:8 |
| B | 6:1 |
| C | 6:4 |
| D | 2:3 |

**33** What is the (simplest) ratio of boys to girls?

boys : 16  
girls : 20

|   |     |   |      |
|---|-----|---|------|
| A | 5:1 | B | 1:11 |
| C | 8:9 | D | 4:5  |

**34** What can this ratio be simplified to?

**15:20**

|   |     |   |      |
|---|-----|---|------|
| A | 3:4 | B | 7:8  |
| C | 7:1 | D | 11:7 |