



Mathematical Reasoning

- 1 Find the fraction that makes this equation correct

$$3\frac{1}{3} - \underline{\hspace{1cm}} = 1\frac{1}{6}$$

A $\frac{17}{18}$	B $\frac{4}{9}$	C $1\frac{1}{6}$
D $2\frac{1}{6}$	E $\frac{5}{6}$	F 4

- 2 Solve this problem:

How many apples were eaten if a koala eats 42 grams of apples and each apple weighs 7 grams?

A -7	B -42	C 6
D 5	E 1	F 0

- 3 Divide these numbers

A 15	B 2	C 14
D 10	E 18	F 9

- 4 Divide these numbers and find the remainder if any

$$\frac{9}{4}$$

A 0 remainder 3	B 1 remainder 3
C 2 remainder 1	D 2 remainder 0
E 5 remainder 2	F 1 remainder 2

- 5 Round the number to the nearest hundred

8210

A 9210	B 8000	C 7210
D 100	E 8200	F 8210

- 6 Round the number to the nearest hundred

342

A 300	B 440	C 400
D 0	E 240	F 340

- 7 Finish this unit rate conversion problem

$$8\frac{s}{\text{yrd}} \cdot \frac{1\text{ yrd}}{3\text{ ft}}$$

A $\frac{7\text{ yrd}}{8\text{ yrd}}$	B $\frac{3\text{ yrd}}{8\text{ yrd}}$	C $\frac{8\text{ yrd}}{8\text{ yrd}}$
D $\frac{8\text{ s}}{3\text{ ft}}$	E $24\frac{\text{yrd}}{\text{yrd}}$	

- 8 What is the total earnings in this scenario?

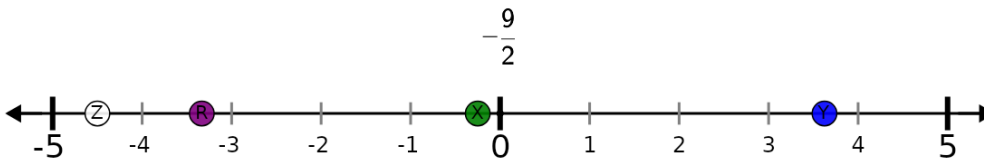
total hours: 4.75 hrs wage: 2.42 \$/hr

A 11.5 \$	B 12 \$
C 10.25 \$	D 12.5 \$



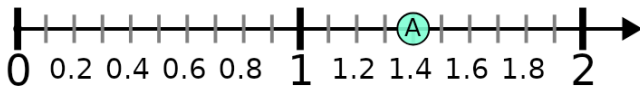
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9 Which dot is at this value?



A	R
B	X
C	Y
D	Z

10 What decimal does this dot represent?



A 1.7	B 1.4	C 1.9
D 1.2	E 1.1	F 0.5

11 Figure out the answer by using the correct order of operations

$$18 \div 2 - 30 \div 5 + 4 = ?$$

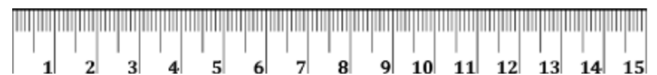
A 13	B 9	C 1
D 7	E 3	F 16

12 Figure out the answer by using the correct order of operations

$$9 + 15 \div 5 + 7 = ?$$

A 28	B 0	C 13
D 19	E 22	F 2

13 Measure the length of the pencil using the centimeter ruler



A 7 cm	B 3.5 cm	C 4.5 cm
D 3 cm	E 4 cm	F 7.5 cm

14 What is the most reasonable value for the given measurement?

The height of a book

A 20 cm	B 20 m
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15 Compare these fractions and choose the right equality operator

$$2\frac{3}{5} \bigcirc \frac{29}{10}$$

<, >, or =?

A =	B >
C <	

A cartoon pencil character with a yellow body, large eyes, and a smiling mouth. It is holding a large blue pencil with a pink eraser and a sharp lead tip. The pencil character is standing on a grey shadow.



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24 Choose the formula or guide for the mean of these numbers

5, 14, 8, 16, 12

A

 $\underline{5} \ 8 \ 12 \ 14 \ 16$ *one 5*

B

 $\underline{5} \ 8 \ 12 \ 14 \ \underline{16}$ $16 - 5$

C

$$\frac{5 + 14 + 8 + 16 + 12}{5}$$

25 Solve this problem:

A group of 7 koalas each eat 6 apples that each weigh 8 grams. How many apples are eaten in total?

A

0

B

4,200

C

45

D

56

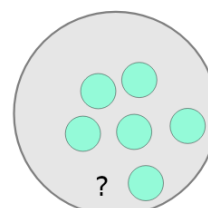
E

42

F

34

26 How many squares should there be if they are in the given ratio?



(squares:all shapes)=(4:

A

10

B

1

C

8

D

3

27 Solve this problem:

10 apples are eaten by 2 koalas. How many apples does each koala eat if each koala eats the same number?

A

70

B

8

C

-2

D

0

E

4

F

5

28 Each letter is a digit (0-9). Is the digit '5' possible in the box with a question mark?

$$\begin{array}{r} \boxed{A} \boxed{B} \boxed{9} \\ \times \quad \boxed{D} \boxed{E} \\ \hline \boxed{F} \boxed{G} \boxed{H} \boxed{?} \end{array}$$

A

Yes

B

No



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29 13 cars each contain 4 riders. How many total riders?



13 cars 4 per car

A



52 riders

B



53 riders

30 How many different cones can you make?

You are putting together an ice cream cone. You choose one flavor (chocolate, vanilla) and one sauce (caramel, fudge, berry). The fudge sauce and the chocolate flavor cannot be chosen together.

A

6

B

7

C

5

D

4

31 Choose the rule that describes this geometric pattern

1, 4, 16, 64

A Start at 1 and add 4 for each term

B Start with 1 and 5. Add the prior two terms for each subsequent term

C Start at 4 and multiply by 4 for each term

D Start at 1 and multiply by 4 for each term

E Start at 1 and multiply by 0 for each term

F Start at 1 and multiply by 3 for each term

32 Find the equation that best represents this sentence

Seven less than eight times t is equal to q

A

$$7t - 8 = q$$

B

$$8(t - 7) = q$$

C

$$8t - 7 = q$$

D

$$8t + 7 = q$$

E

$$8t \times 7 = q$$

33 Estimate the difference by rounding each number to the nearest 100

$$599 - 495 = ?$$

A

400

B

200

C

100

D

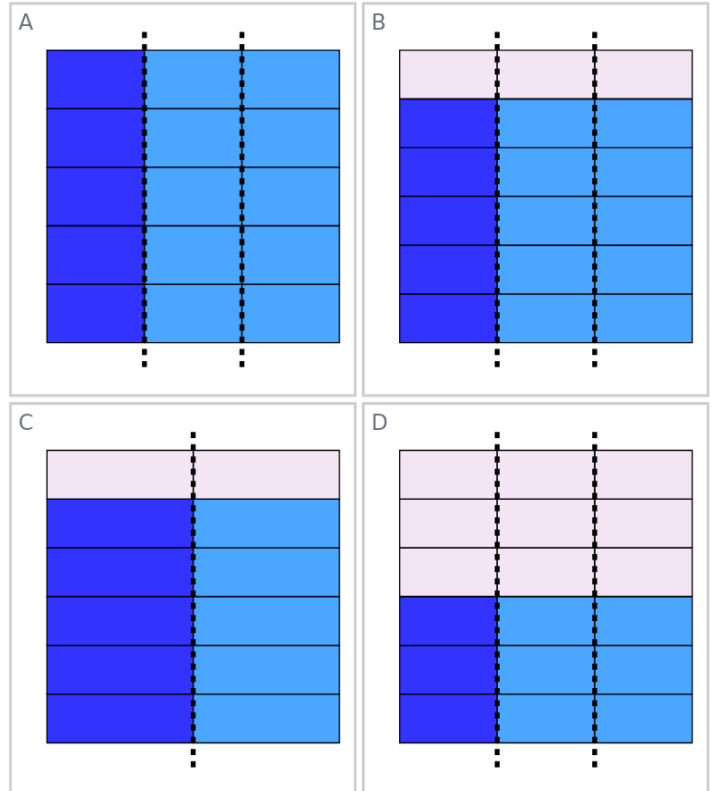
300



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34 Which picture shows this fraction division?

$$\frac{5}{6} \div 3$$



35 What is the missing value in the table?

Rule: divide by 2

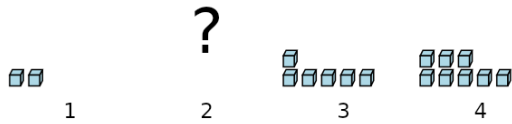
Input	Output
2	?
6	3
10	5
12	6
18	9

A	1
B	4
C	16
D	18



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- 36** Find the term that would complete this increasing pattern in the missing space 2, ?, 6, 8



A 4	B 12	C 2
D 7	E 13	F 1

- 37** Solve the two-step equation for x.

$$-2 + \frac{x}{3} = 6$$

A $x = 23$	B $x = 25$
C $x = 24$	D $x = 26$

- 38** Which strategy correctly counts the number of different cones?

You are putting together an ice cream cone. You choose one flavor (chocolate, vanilla, strawberry) and one sauce (caramel, fudge). The caramel sauce and the strawberry flavor cannot be chosen together.

A Multiply the choices for every option and ignore the restriction.
B Add together the number of choices for every option.
C Multiply to count every outcome, then subtract the outcomes where both restricted options are chosen.
D Subtract the number of options from the total number of choices.

- 39** Solve for the missing value
 $78 - ? - 23 - 11 = 7$

A 7	B 10	C 31
D 52	E 61	F 37

- 40** Add these fractions, but don't simplify the answer

$$\frac{1}{5} + \frac{2}{3}$$

A $\frac{6}{15}$	B $\frac{3}{15}$	C $\frac{8}{15}$
D $\frac{12}{15}$	E $\frac{13}{15}$	F $\frac{15}{15}$