

# Mental Math

## Grade 9 Mathematics (10F)

A-1

Strand: Number

Specific Learning Outcome: 9.N.1

General Questions	Answers
1. How many half-dozen packages of eggs does it take to get 420 eggs?	70 packages
2. Evaluate: $32 \div 0.5$	64
3. How many centimetres are equivalent to 67 mm?	6.7 cm
4. At the hardware store, the price of a tool box is \$300. It is on sale for 40% off. What is the sale price of the tool box?	\$180
5. If Andre completed $\frac{3}{8}$ of his homework and Patricia completed $\frac{2}{3}$ of hers, who is closer to completing their homework?	Patricia
6. If one notebook costs \$0.27, how much do 100 notebooks cost?	\$27
Unit Questions	
7. Write the following in repeated multiplication form: $2^5$	$2 \times 2 \times 2 \times 2 \times 2$
8. Evaluate: $3^3$	27
9. Evaluate: $1^8$	1
10. Evaluate: $(-3)^0$	1
Other Questions	
11.	
12.	

# Mental Math

## Grade 9 Mathematics (10F)

A-2

Strand: Number

Specific Learning Outcome: 9.N.1

### General Questions

1. Add:  $79 + 88 + 12$
2. Estimate the value of a 9% tip on a bill of \$51.30.
3. Gilles is paid commission at a rate of 5% of his sales. How much commission does Gilles earn if he sells a shirt for \$40?
4. If 15 out of the 30 kids in French class read at least one book a month, what fraction of the kids are monthly readers?
5. How many days are there in 18 weeks?
6. Subtract:  $\frac{4}{5} - \frac{9}{25}$

### Answers

179

$\approx \$5$

\$2

$\frac{1}{2}$

126 days

$\frac{11}{25}$

### Unit Questions

7. Write the following multiplication in exponent form:  
 $5 \times 5 \times 5 \times 5 \times 5 \times 5$
8. Which is larger:  $3^4$  or  $4^3$ ?
9. Find the difference:  $2^6 - 2^3$
10. Evaluate:  $5^2 + 4^0$

$5^6$

$3^4$

56

26

### Other Questions

11.

12.

# Mental Math

## Grade 9 Mathematics (10F)

A-3

Strand: Number

Specific Learning Outcome: 9.N.2

General Questions	Answers
1. If, on average, a cafeteria sells 42 tuna sandwiches each day, how many would be sold in 5 days?	210 sandwiches
2. Write $\frac{2}{5}$ as a number in decimal form.	0.4
3. How much change will you get back if you make a purchase of \$38.17 using a \$50 bill?	\$11.83
4. Add: $\frac{3}{5} + \frac{54}{10}$	$\frac{60}{10}$ or 6
5. To receive 80% on a test worth 40 marks, how many marks do you need?	32 marks
6. If you run at a speed of 3 m/s for 300 s, how many metres will you run?	900 m
Unit Questions	
Simplify the expressions by writing the results in exponent form.	
7. $(6^3)(6^2)$	$6^5$
8. $\frac{7^{12}}{7^4}$	$7^8$
9. $(9^2)^3$	$9^6$
10. $(12^4)^0$	$12^0$ or 1
Other Questions	
11.	
12.	

# Mental Math

## Grade 9 Mathematics (10F)

A-4

Strand: Number

Specific Learning Outcome: 9.N.2

### General Questions

1. One-quarter of 88 houses on the same street have two-door garages. How many houses does that represent?
2. If Sonia earns \$28 per shift, how much money will she earn after 4 shifts?
3. Add:  $31 + (-19)$
4. Eight out of 25 students in your swimming class swim 3 mornings per week. What percentage of students does that represent?
5. How many 25¢ coins are equivalent to \$7.50?
6. Simplify the fraction  $\frac{-25}{75}$ .

### Answers

22 houses

\$112

12

32%

30 quarters

$-\frac{1}{3}$

### Unit Questions

7. Simplify the expression and write it in exponent form:  $(13^2 \times 13^7)^4$
8. Simplify:  $\left(\frac{2}{3}\right)^3$
9. Simplify:  $4^2 \times 5^2$
10. Simplify:  $\frac{3^2 + 8^0}{5^2}$

$13^{36}$

$\frac{8}{27}$

400

$\frac{2}{5}$

### Other Questions

11.

12.

# Mental Math

## Grade 9 Mathematics (10F)

A-5

Strand: Number

Specific Learning Outcome: 9.N.3

General Questions	Answers
1. Simplify the fraction $\frac{-8}{-36}$ .	$\frac{2}{9}$
2. Subtract: $\frac{9}{2} - \frac{5}{2}$	2
3. What is the cost of 4 pens if each pen costs \$1.97?	\$7.88
4. What is the probability of flipping a 25¢ coin and receiving heads?	$\frac{1}{2}$
5. The square root of 71 is found between which two consecutive whole numbers?	8 and 9
6. The monthly rent on an apartment is \$600. If the rent is raised by 1%, what is the new cost to rent the apartment each month?	\$606
Unit Questions	
7. Find the value of the decimal that corresponds to $0.7 + \frac{3}{5}$ .	1.3
8. Put the following in ascending order: $\frac{3}{4}, \frac{2}{5}, \frac{4}{6}$	$\frac{2}{5}, \frac{4}{6}, \frac{3}{4}$
9. The fraction $\frac{37}{8}$ is found between which two consecutive whole numbers?	4 and 5
10. Find the fraction that corresponds to $0.8 + \frac{2}{5}$ .	$\frac{6}{5}$
Other Questions	
11.	
12.	

# Mental Math

## Grade 9 Mathematics (10F)

A-6

Strand: Number

Specific Learning Outcome: 9.N.3

### General Questions

1. Joel mixes one box of orange juice with four boxes of water. Express the mix in ratio form.
2. If 1 kilogram is equivalent to 2.2 pounds, how many pounds are in 100 kg?
3. How much money would you earn if you worked 40 hours at \$7.50 per hour?
4. What is the next number in the following sequence: 2, 4, 8, 16, \_\_\_\_\_?
5. Evaluate the circumference of a circle with a radius of 5 cm if  $\pi \approx 3$ .
6. Place the following in ascending order:  $0.7, \frac{8}{9}, \frac{1}{3}, 0.09$

### Answers

1:4

220 pounds

\$300

32

30 cm

$0.09, \frac{1}{3}, 0.7, \frac{8}{9}$

### Unit Questions

7. Place the following in ascending order:  $-0.2, -\frac{4}{7}, -0.8, -\frac{1}{6}$
8. Multiply:  $7^0 \times 5^2$
9. Write  $\frac{7}{20}$  in decimal form.
10. Write 0.56 as a reduced fraction.

$-0.8, -\frac{4}{7}, -0.2, -\frac{1}{6}$

25

0.35

$\frac{14}{25}$

### Other Questions

11.

12.

# Mental Math

## Grade 9 Mathematics (10F)

A-7

Strand: Number

Specific Learning Outcome: 9.N.4

### General Questions

1. Multiply:  $9 \times \frac{2}{3}$
2. If you leave a tip of 10% on a bill of \$34, what is your total cost?
3. Reduce the fraction  $\frac{15}{45}$ .
4. What two numbers have a sum of 9 and a product of 20?
5. Calculate the perimeter of a garage with a width of 8 m and a length of 16 m.
6. What is the total cost of 5 flower pots if each pot costs \$3.50?

### Answers

6

\$37.40

$\frac{1}{3}$

4 and 5

48 m

\$17.50

### Unit Questions

7. Evaluate:  $2(3)^2$
8. Evaluate:  $50 - 2^5$
9. Evaluate:  $-4^2$
10. Evaluate:  $1 + 2 \times 3 + 4$

18

18

-16

11

### Other Questions

11.

12.

# Mental Math

## Grade 9 Mathematics (10F)

A-8

Strand: Number

Specific Learning Outcome: 9.N.4

### General Questions

1. David spends at least 65 minutes a day at the Fitness Centre. How many minutes does he spend in 5 days?
2. Evaluate:  $5^2 + 10^2$
3. The square root of 111 is found between which two consecutive whole numbers?
4. The price of a \$320 camera is reduced by 40%. What is the amount of the reduction?
5. Write the expression that represents twice the sum of  $x$  and 5.
6. Express  $\frac{1}{4}$  as a number in decimal form.

### Answers

325 minutes

125

10 and 11

\$128

$2(x + 5)$

0.25

### Unit Questions

7. Evaluate:  $(5^2 - 2^4) \times 3$
8. Evaluate:  $(12 - 3 \times 3) \times 5$
9. Evaluate:  $10 + (2 \times 3 - 15)^0$
10. In an enclosure, there are 11 rabbits and 3 ducks. Calculate the number of legs.

27

15

11

50 legs

### Other Questions

11.

12.



# Mental Math

## Grade 9 Mathematics (10F)

A-9

Strand: Number

Specific Learning Outcome: 9.N.5

General Questions	Answers
1. What is the price of 3 barbecues at \$199 each?	\$597
2. In a volleyball team with 12 players, 8 of them measure more than 2.0 m. What fraction of the players does this represent?	$\frac{2}{3}$
3. Estimate: $\sqrt{1620}$	$\approx 40$
4. If the price of a \$40 blouse is raised by 10%, what is the new price of the blouse?	\$44
5. Divide a bill for \$36.03 equally among 3 people.	\$12.01/person
6. Is the quotient, $\frac{-0.22}{-0.12}$ , positive or negative?	positive
Unit Questions	
7. Evaluate: $\sqrt{\frac{16}{25}}$	$\frac{4}{5}$
8. Find the negative square root of $\frac{81}{49}$ .	$-\frac{9}{7}$
9. Evaluate: $\sqrt{25} + \sqrt{36}$	11
10. Determine the value of $\sqrt{(9 + 4 \times 5 \times 2)}$ .	7
Other Questions	
11.	
12.	

# Mental Math

## Grade 9 Mathematics (10F)

A-10

Strand: Number

Specific Learning Outcome: 9.N.5

### General Questions

1. If you read 132 pages of a 400-page book, how many pages do you have left to read?
2. Add:  $-33 + 18$
3. If you buy an item that costs \$13.65 with a \$20 bill, how much money will you get back?
4. How many months with 31 days are there in a year?
5. Is the value of the expression  $3^2 + 5^2 - 6^2$  negative or positive?
6. Rene is 37 years old. Her son, Joel, is 13 years old. How old was Rene when her son was born?

### Answers

268 pages

-15

\$6.35

7

negative

24 years old

### Unit Questions

7. Evaluate:  $-\sqrt{625}$
8. Evaluate:  $\sqrt{3^4}$
9. Evaluate:  $\sqrt{152^2}$
10. Which of the following numbers are perfect squares?  
2    144    120    92    4900

-25

9

152

144 and 4900

### Other Questions

11.

12.

# Mental Math

## Grade 9 Mathematics (10F)

A-11

Strand: Number

Specific Learning Outcome: 9.N.5

General Questions	Answers
1. Add: $\frac{1}{6} + \frac{1}{7}$	$\frac{13}{42}$
2. If a total of 408 spectators came to your school's tennis tournament last Friday and Saturday, how many spectators came on average each day?	204 spectators
3. Write $\frac{1}{5}$ in decimal form.	0.2
4. Colin has \$29 more in his pocket than Sylvie. If Sylvie has \$45, how much money does Colin have?	\$74
5. Reduce the ratio 35:15 to its simplest form.	7:3
6. If you work 40 hours at \$7 per hour, how much money will you earn?	\$280
Unit Questions	
7. Evaluate: $\sqrt{\frac{9}{16}}$	$\frac{3}{4}$
8. What is the negative square root of the expression $99 - 5 + 3 \times 2$ ?	-10
9. Evaluate: $13 - \sqrt{144} \times 5$	-47
10. The square root of a number is 14. What is that number?	196
Other Questions	
11.	
12.	

# Mental Math

## Grade 9 Mathematics (10F)

A-12

Strand: Number

Specific Learning Outcome: 9.N.6

### General Questions

1. Evaluate:  $18 + 6 \div 2 \times 3$
2. What is the perimeter of an equilateral triangle if each side measures 15 m?
3. Determine the total cost of your lunch at the school cafeteria from Monday to Friday, if you spend at least \$7.50 per lunch.
4. What is the lowest common denominator of  $\frac{5}{6}$  and  $\frac{9}{10}$ ?
5. If 22% of 50 students are part of the school orchestra, how many students does that represent?
6. If a turkey takes 4.5 hours to cook, how many minutes does it take?

### Answers

27

45 m

\$37.50

30

11 students

270 minutes

### Unit Questions

7. The value of  $\sqrt{21}$  is found between which two consecutive numbers?
8. Estimate the value of  $\sqrt{30}$ .
9. Find the value of  $\sqrt{0.16}$ .
10. The value of  $\sqrt{87}$  is found between which two consecutive numbers?

4 and 5

$\approx 5.2$  to  $5.5$

0.4

9 and 10

### Other Questions

11.

12.

# Mental Math

## Grade 9 Mathematics (10F)

A-13

Strand: Number

Specific Learning Outcome: 9.N.6

General Questions	Answers
1. Find the equivalent fraction of $\frac{31}{100}$ if its denominator is 1000.	$\frac{310}{1000}$
2. Determine the total cost if you buy a pair of runners that costs \$74, a ball that costs \$89, and a water bottle that costs \$11.	\$174
3. What two numbers have a sum of 5 and a product of 4?	1 and 4
4. If you make a purchase of \$8.41 with a \$20 bill, how much money will you get back?	\$11.59
5. What is the next number in the sequence: 15, 21, 27, 33, ____?	39
6. On a test with 199 multiple choice questions, you received 149 correct answers. Estimate your results as a percentage.	$\approx 75\%$
Unit Questions	
7. Estimate the value of $\sqrt{9.2 \times 4.3}$ as a whole number.	$\approx 6$
8. Determine the approximate value of $\sqrt{\frac{17}{50}}$ (as a fraction).	$\approx \frac{4}{7}$
9. The value of the negative square root of 88 is found between what two integers?	-9 and -10
10. Find the value of $\sqrt{0.0025}$ .	0.05
Other Questions	
11.	
12.	