

1. The formula $F = 1.8C + 32$ relates degrees Fahrenheit (F) to degrees Celsius (C). What is the equivalent Fahrenheit temperature for 40 degrees Celsius?
- A 41.8°F
B 72.0°F
C 73.8°F
D 104.0°F
2. Evaluate:
 $y + y + c - 10 + x$
if $x = 7$, $y = 10$, $c = 8$
- A 11
B 21
C 25
D 105
3. If $x = -3$, what is the value of $2x + 8$?
- A 2
B 7
C 14
D 48
4. Which ordered pair, (x, y) , makes the equation $y = x + 3$ true?
- A $(3, 0)$
B $(4, 1)$
C $(2, 5)$
D $(6, 4)$
5. Solve: $y + 2 = -8$
- A $y = -16$
B $y = -10$
C $y = -6$
D $y = -4$
6. What is the value of n in this equation?
- $$-3n = -27$$
- A 9
B -9
C -24
D -30

7. On the radio one morning, a weather reporter stated that the temperature was two degrees below zero, but the temperature would continue to rise throughout the day. Which inequality could be used to represent all the temperature readings, T , that day?
- A $T < -2$
B $T \leq -2$
C $T > -2$
D $T \geq -2$
8. A rectangular garden has a perimeter of 40 feet. The length of the garden is 12 feet and the width is w . Which equation can be used to determine the width of the garden?
- A $2(w + 12) = 40$
B $2(w) + 12 = 40$
C $w + 12 = 40$
D $w - 12 = 40$
9. For the animal shelter, Elena purchased five dog leashes for \$9.98 each, five bags of dog food for \$24.99 each, and five dog crates for x dollars each. Which equation could be used to determine Elena's total cost, C ?
- A $5 + \$9.98 + 5 + \$24.99 = C$
B $\frac{\$9.98 + \$24.99}{5} = C$
C $(\$9.98 + \$24.99 + x)5 = C$
D $5 + (\$9.98 + \$24.99 + x) = C$
10. Jason walks 1.5 meters per second. Which equation can be used to find how much time, t , in seconds it will take Jason to walk 2.7 kilometers?
- A $2.7 \div 1.5 = t$
B $1.5 \times t = 2,700$
C $2,700 - 1.5 = t$
D $1.5 + t = 2.7$
11. If 7 points were added to Jane's current math grade, her grade would be higher than 100. What are all of the possible values for Jane's current math grade, g ?
- A $g > 93$
B $g > 107$
C $g < 93$
D $g < 107$

12. Mary used the equation $292 = 5h + 192$ to determine her salary at the restaurant last week. Which situation does this equation **best** represent?
- A Mary earns \$5 per hour as a waitress. Last week she took home her regular earnings of \$292 plus \$192 in tips. How many hours, h , did she work last week?
- B Mary earns \$292 per week as a waitress. Last week she took home her regular earnings of \$192 plus \$5 in tips. How many hours, h , did she work last week?
- C Mary worked 5 hours at the restaurant last week. She took home her regular earnings of \$192 plus tips for a total of \$292. How much were her tips, h ?
- D Mary earns \$5 per hour as a waitress. Last week she took home her regular earnings of \$5 per hour plus \$192 in tips for a total of \$292. How many hours, h , did she work last week?
13. Which word problem could be solved by using the equation $x + 6 = 15$?
- A Marcie has 6 more homework problems to solve. If she had a total of 15 problems to solve, how many has she already completed?
- B Marcie has completed 15 homework problems. She has 6 more to solve. How many problems did she have for homework?
- C Marcie needs to complete 15 more problems for her math homework. She has completed a total of 6. How many problems will she complete for homework?
- D Marcie has 6 more problems to solve for homework than she had last night. If she had 15 problems to solve last night, how many problems does she have to solve tonight?
14. Assuming this pattern continues, what will be the seventh term in the sequence?
- $-3, 6, -12, 24, _, _, _?$
- A 192
- B 96
- C -96
- D -192

15. If the pattern for this sequence of numbers continues, what will be the seventh term?

$$1, \frac{3}{4}, \frac{9}{16}, \frac{27}{64}, \dots$$

- A $\frac{21}{28}$
- B $\frac{2,187}{16,384}$
- C $\frac{729}{4,096}$
- D $\frac{732}{4,100}$

16. Sonya folded a piece of paper in half and formed two equal sections.

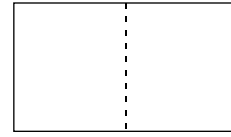


Figure 1

Without unfolding it, she folded it in half again and formed four equal sections.

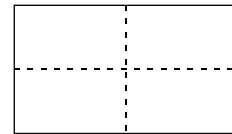


Figure 2

If she folded the paper in half 5 times, how many equal sections would be formed?

- A 10
- B 16
- C 20
- D 32

17. What rule could be used to find b if a is known?

a	b
-4	-16
-2	-10
0	-4
3	5

- A $b = 4a$
- B $b = 3a - 4$
- C $b = 5a$
- D $b = a - 4$

End of Goal 3 Sample Items

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Answers to EOG Mathematics Grade 7 Sample Items

Goal 3

1. **Objective 3.01**
Evaluate algebraic expressions.
Thinking Skill: Applying **Correct Answer:** D

2. **Objective 3.01**
Evaluate algebraic expressions.
Thinking Skill: Applying **Correct Answer:** C

3. **Objective 3.01**
Evaluate algebraic expressions.
Thinking Skill: Applying **Correct Answer:** A

4. **Objective 3.01**
Evaluate algebraic expressions.
Thinking Skill: Analyzing **Correct Answer:** C

5. **Objective 3.02**
Model and solve simple equations and inequalities and graph their solutions;
use appropriate technology.
Thinking Skill: Applying **Correct Answer:** B

6. **Objective 3.02**
Model and solve simple equations and inequalities and graph their solutions;
use appropriate technology.
Thinking Skill: Applying **Correct Answer:** A

7. **Objective 3.02**
Model and solve simple equations and inequalities and graph their solutions;
use appropriate technology.
Thinking Skill: Analyzing **Correct Answer:** D

8. **Objective 3.03**
Write or model a simple linear equation or inequality to solve a given problem;
use appropriate technology.
Thinking Skill: Analyzing **Correct Answer:** A

Answers to EOG Mathematics Grade 7 Sample Items

Goal 3

- 9. Objective 3.03**
Write or model a simple linear equation or inequality to solve a given problem; use appropriate technology.
Thinking Skill: Analyzing **Correct Answer:** C
- 10. Objective 3.03**
Write or model a simple linear equation or inequality to solve a given problem; use appropriate technology.
Thinking Skill: Analyzing **Correct Answer:** B
- 11. Objective 3.03**
Write or model a simple linear equation or inequality to solve a given problem; use appropriate technology.
Thinking Skill: Analyzing **Correct Answer:** A
- 12. Objective 3.04**
Write a problem given a simple linear equation or inequality.
Thinking Skill: Analyzing **Correct Answer:** D
- 13. Objective 3.04**
Write a problem given a simple linear equation or inequality.
Thinking Skill: Analyzing **Correct Answer:** A
- 14. Objective 3.05**
Describe, extend, analyze and create a wide variety of patterns to investigate relationships and solve problems; use appropriate technology.
Thinking Skill: Generating **Correct Answer:** D
- 15. Objective 3.05**
Describe, extend, analyze and create a wide variety of patterns to investigate relationships and solve problems; use appropriate technology.
Thinking Skill: Generating **Correct Answer:** C
- 16. Objective 3.05**
Describe, extend, analyze and create a wide variety of patterns to investigate relationships and solve problems; use appropriate technology.
Thinking Skill: Generating **Correct Answer:** D
- 17. Objective 3.05**
Describe, extend, analyze and create a wide variety of patterns to investigate relationships and solve problems; use appropriate technology.
Thinking Skill: Analyzing **Correct Answer:** B