

1. Susie earns \$4.90 per hour. If she earned \$390.27 last pay period, **about** how many hours did she work during the pay period?
- A 85
B 80
C 75
D 70
2. Which of the following is the **best** estimate of the following product?
- $$13.9624 \times 0.501$$
- A 0
B 7
C 13
D 14
3. Which of the following is the **best** estimate of this quotient?
- $$154.69 \div 10.2$$
- A 13
B 14
C 15
D 16
4. The Thomas family went for a Sunday drive. Before they left, Mr. Thomas noticed the gas tank was $\frac{3}{4}$ full. When they returned home the gas tank was $\frac{1}{3}$ full. If the gas tank holds 18 gallons, how many gallons of gas did the car use on the drive?
- A $6\frac{1}{2}$
B $7\frac{1}{2}$
C $8\frac{1}{2}$
D $9\frac{1}{2}$
5. Which of the following lists the numbers in order from least to greatest?
- A 17.3% , 17.33 , $17\frac{1}{3}$, $17\overline{34}$
B 17.33 , $17\frac{1}{3}$, 17.3% , $17\overline{34}$
C $17\overline{34}$, 17.33 , $17\frac{1}{3}$, 17.3%
D 17.3% , 17.33 , $17\overline{34}$, $17\frac{1}{3}$

6. Which of the following is closest to 1?
- A $\frac{7}{112}$
- B $\frac{57}{76}$
- C $1\frac{3}{10}$
- D $1\frac{4}{9}$
7. Students in four classrooms were asked if they planned to participate in a school sport for the coming year. Which group had the **highest** percent reply yes?
- A Classroom A – 15 yes out of 24
- B Classroom B – 30 yes out of 42
- C Classroom C – 12 yes out of 17
- D Classroom D – 18 yes out of 26
8. Which decimal represents $\frac{19}{6}$?
- A 3.16
- B $3.\overline{16}$
- C $3.1\overline{6}$
- D 3.2
9. Sally's math grade average went from an 84 to a 98. What was the percent of increase in her grade average?
- A 14%
- B $14\frac{2}{7}\%$
- C $16\frac{2}{3}\%$
- D 22%
10. Over the past 8 years the property tax value of Jake's house increased from \$85,000 to \$93,000. By **about** what percent did the property tax value increase?
- A 8%
- B 9%
- C 11%
- D 13%
11. The manufacturer's price for a tent is \$28.50. A camping store that bought the tents sells them for \$40.76. **Approximately** what was the percent of increase in the price of the tents?
- A 43.0%
- B 57.0%
- C 75.4%
- D 76.0%

12. Mr. Jones purchased a new compact disc (CD) player for \$97.19 including tax. The CD player had a sticker price of \$89.99. To the nearest whole number, what percent sales tax did he pay?
- A 6%
- B 7%
- C 8%
- D 9%
13. There were approximately 113,800,000 people living in Nigeria in 1999. How is this number written in scientific notation?
- A 113.8×10^6
- B 11.3×10^7
- C 1138.0×10^5
- D 1.138×10^8
14. According to the 1998 Census Bureau data, New York City was ranked number 1 in population with a population of approximately 7.3×10^6 . Los Angeles, California, ranked number 2 with a population of slightly less than half that of New York City. Which of the following could be the **approximate** population for Los Angeles?
- A 7,300
- B 3,500,000
- C 3,900,000
- D 14,700,000

15. Amanda determined that it would be easier to find the answer to this homework problem by using scientific notation.

$$378,000,000 \div 0.000006$$

Amanda correctly rewrote this problem using scientific notation. Which did Amanda write?

- A $\frac{3.78 \times 10^8}{6.0 \times 10^{-6}}$
- B $\frac{0.378 \times 10^9}{0.6 \times 10^{-5}}$
- C $\frac{3.78 \times 10^6}{6.0 \times 10^{-6}}$
- D $\frac{378}{6.0} \times 10^{12}$
16. The radius of an atom is one nanometer, which is approximately 3.937×10^{-8} of an inch. What is this length expressed in standard notation?
- A 0.000000003937 in.
- B 0.00000003937 in.
- C 0.0000003937 in.
- D 0.000003937 in.

17. Evaluate: $\left(\frac{-2}{3}\right)^3$

A $\frac{-8}{9}$

B $\frac{-6}{9}$

C $\frac{-8}{27}$

D $\frac{8}{27}$

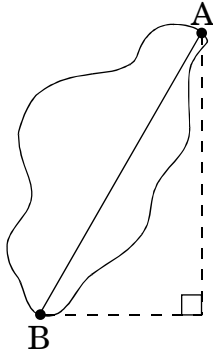
18. Which expression is equivalent to $3^3 \cdot 36 \cdot 2^4$?

A $2^6 \cdot 3^5$

B $2^8 \cdot 3^6$

C $2^6 \cdot 3^6$

D $2^8 \cdot 3^5$

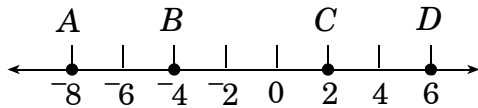
19. Simplify: $\frac{(2^2 \cdot 5)^3}{2^5 \cdot 5^8}$
- A $\frac{2}{5^5}$
- B $\frac{1}{2^2 \cdot 5}$
- C $\frac{1}{5}$
- D $\frac{5}{2}$
20. Kelly found that the length of the hypotenuse of a triangle was equal to the square root of 125. The length of the hypotenuse was between which two consecutive integers?
- A 10 and 11
- B 11 and 12
- C 30 and 31
- D 62 and 63
21. The area of a square is 800 square meters. The length of its side is between which two numbers?
- A 27 and 28
- B 28 and 29
- C 200 and 201
- D 400 and 401
22. Jean used the Pythagorean Theorem to determine the distance in feet from point A to point B across the lake.
- 
- If the length of \overline{AB} is equal to the square root of 3,000, what is true about this distance?
- A It is between 30 feet and 31 feet.
- B It is between 40 feet and 50 feet.
- C It is between 54 feet and 55 feet.
- D It is between 55 feet and 56 feet.

23. A surveyor determined that the distance across a pond is $\sqrt{2,255}$ feet. What is this distance to the nearest tenth of a foot?
- A 22.6 ft
B 25.0 ft
C 47.5 ft
D 1,127.5 ft
24. Certain bacteria double in number every 20 minutes. When starting with a single bacterium of this type, which of the following *best* represents the number of bacteria that are present after 7 hours?
- A 1.3×10^2
B 1.4×10^2
C 1.3×10^6
D 2.1×10^6
25. One astronomical unit (AU) is the average distance from Earth to the sun. This distance is about 1.5×10^8 kilometers. What is the equivalent distance in kilometers for 3 astronomical units?
- A 4.5×10^{22}
B 1.5×10^{22}
C 4.5×10^8
D 4.5×10^4
26. The mass of an electron is 9×10^{-28} grams. A proton weighs 1,836 times as much as an electron. Which of the following represents the weight, in grams, of a proton written in scientific notation?
- A 1.0836×10^{-24}
B 1.0836×10^{-28}
C 1.6524×10^{-24}
D 1.6524×10^{-28}

27. An insect population in a lab has 2^{16} insects. If the population doubles, how many insects will there be?

A 2^{17}
 B 2^{32}
 C 4^{16}
 D 4^{32}

28. Which of the following numbers graphed on the number line below has the **smallest** absolute value?

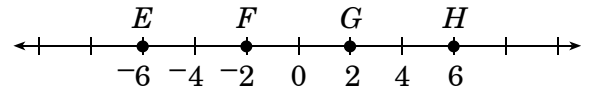


A -8
 B -4
 C 2
 D 6

29. What number is 5 less than four times the absolute value of -7 ?

A -33
 B -23
 C 23
 D 33

30. Which point below corresponds to the value of $|-4| + |2|$?



A E
 B F
 C G
 D H

31. Which of the following is a true statement?

A $|-3| = -2 + |-1|$
 B $|-3| = |-2 + 1|$
 C $|-3| = |-2| + -1$
 D $|-3| = |-2 + -1|$

32. Which property allows us to rewrite $8a + 2b + 3c + 4b$ as $8a + 3c + 2b + 4b$?
- A commutative property
 - B associative property
 - C additive identity property
 - D distributive property
-

33. The expression $4(5 - 3y) + 3(y + 2)$ is simplified in the following steps.

Step 1	$4(5 - 3y) + 3(y + 2) = 20 - 12y + 3y + 6$
Step 2	$= 20 - 9y + 6$
Step 3	$= 20 + 6 - 9y$
Step 4	$= 26 - 9y$

Which property was used to go from Step 2 to Step 3?

- A commutative property
- B additive identity
- C associative property
- D distributive property

34. The expression $3(6 - 4x) + 5$ is simplified in the following steps.

Step 1 $3(6 - 4x) + 5 = 18 - 12x + 5$

Step 2 $= 18 + 5 - 12x$

Step 3 $= 23 - 12x$

Which property was applied in Step 1?

- A associative property
B multiplicative identity
C commutative property
D distributive property
35. Simplify: $-10 + 2(4 + w)$
- A $-32 - 8w$
B $-18 + 2w$
C $-2 + w$
D $-2 + 2w$

36. "Multiply 2 times the sum of 3 times a number and 8."

What is the simplified expression?

- A $8n + 3$
B $3n + 8$
C $6n + 24$
D $6n + 16$
37. Simplify: $8y^2 - 3y - 5y + 2y^2$
- A $8y^2 + 8y$
B $8y^2 - 8y$
C $10y^2 - 8y$
D $10y^2 - 10y$
38. Which of the following is the perimeter of a square whose side measures $2a + 3$?
- A $11a$
B $8a + 7$
C $8a + 3$
D $8a + 12$

39. Simplify: $6(2x + 3y) + 3(x - y)$
- A $9x$
- B $12x - 13y$
- C $15x + 15y$
- D $12x + 15y$
40. Sam has a total of 15 cows and horses. He feeds each animal 2.3 pounds of grain each day. Each day he also puts out 10 extra pounds of grain for the animals. How much grain does Sam use each week?
- A 44.5 pounds
- B 104.5 pounds
- C 251.5 pounds
- D 311.5 pounds
41. What additional information is needed to solve this problem?
- Mary paid \$2.20 for a sandwich, a cup of fruit, and a pint of milk. If the sandwich costs \$0.95, what was the cost of the cup of fruit?
- A the cost of a pint of milk
- B the total cost of the lunch
- C the size of the cup of fruit
- D No additional information is needed.
42. Maria bought 8 yards of fabric for a costume for the spring production. The material usually costs \$2.35 per yard but is on sale this week for 25% off. How much did Maria spend on fabric?
- A \$4.70
- B \$14.10
- C \$16.30
- D \$16.80

43. Jackie can mow the lawn at his house in 45 minutes. Chris can mow the same lawn in 50 minutes. Which question would require additional information to find a solution?
- A How much more than Chris did Jackie charge to mow the lawn?
 - B Who mows the lawn faster?
 - C If Jackie works alone, how much of the lawn will be mowed in 30 minutes?
 - D If Chris works alone, how much of the lawn will be mowed in 30 minutes?

End of Goal 1 Sample Items

In compliance with federal law, including the provisions of Title IX of the Education Amendments of 1972, the Department of Public Instruction does not discriminate on the basis of race, sex, religion, color, national or ethnic origin, age, disability, or military service in its policies, programs, activities, admissions or employment.

Answers to EOG Mathematics Grade 8 Sample Items

Goal 1

1. **Objective 1.02**
Estimate and compute with rational numbers.
Thinking Skill: Applying **Correct Answer:** B
2. **Objective 1.02**
Estimate and compute with rational numbers.
Thinking Skill: Generating **Correct Answer:** B
3. **Objective 1.02**
Estimate and compute with rational numbers.
Thinking Skill: Generating **Correct Answer:** C
4. **Objective 1.02**
Estimate and compute with rational numbers.
Thinking Skill: Applying **Correct Answer:** B
5. **Objective 1.03**
Compare, order, and convert among fractions, decimals (terminating and non-terminating), and percents.
Thinking Skill: Organizing **Correct Answer:** A
6. **Objective 1.03**
Compare, order, and convert among fractions, decimals (terminating and non-terminating), and percents.
Thinking Skill: Analyzing **Correct Answer:** B
7. **Objective 1.03**
Compare, order, and convert among fractions, decimals (terminating and non-terminating), and percents.
Thinking Skill: Integrating **Correct Answer:** B
8. **Objective 1.03**
Compare, order, and convert among fractions, decimals (terminating and non-terminating), and percents.
Thinking Skill: Applying **Correct Answer:** C
9. **Objective 1.04**
Solve problems involving percent of increase and percent of decrease.
Thinking Skill: Applying **Correct Answer:** C
10. **Objective 1.04**
Solve problems involving percent of increase and percent of decrease.
Thinking Skill: Applying **Correct Answer:** B

Answers to EOG Mathematics Grade 8 Sample Items

Goal 1

11. Objective 1.04

Solve problems involving percent of increase and percent of decrease.

Thinking Skill: Applying **Correct Answer:** A

12. Objective 1.04

Solve problems involving percent of increase and percent of decrease.

Thinking Skill: Applying **Correct Answer:** C

13. Objective 1.05

Use scientific notation to express large numbers and numbers less than one. Write in standard form numbers given in scientific notation.

Thinking Skill: Knowledge **Correct Answer:** D

14. Objective 1.05

Use scientific notation to express large numbers and numbers less than one. Write in standard form numbers given in scientific notation.

Thinking Skill: Generating **Correct Answer:** B

15. Objective 1.05

Use scientific notation to express large numbers and numbers less than one. Write in standard form numbers given in scientific notation.

Thinking Skill: Analyzing **Correct Answer:** A

16. Objective 1.05

Use scientific notation to express large numbers and numbers less than one. Write in standard form numbers given in scientific notation.

Thinking Skill: Analyzing **Correct Answer:** B

17. Objective 1.06

Use rules of exponents.

Thinking Skill: Applying **Correct Answer:** C

18. Objective 1.06

Use rules of exponents.

Thinking Skill: Analyzing **Correct Answer:** A

19. Objective 1.06

Use rules of exponents.

Thinking Skill: Applying **Correct Answer:** A

Answers to EOG Mathematics Grade 8 Sample Items

Goal 1

20. Objective 1.07

Estimate the square root of a number between two consecutive integers; using a calculator, find the square root of a number to the nearest tenth.

Thinking Skill: Analyzing **Correct Answer:** B

21. Objective 1.07

Estimate the square root of a number between two consecutive integers; using a calculator, find the square root of a number to the nearest tenth.

Thinking Skill: Analyzing **Correct Answer:** B

22. Objective 1.07

Estimate the square root of a number between two consecutive integers; using a calculator, find the square root of a number to the nearest tenth.

Thinking Skill: Analyzing **Correct Answer:** C

23. Objective 1.07

Estimate the square root of a number between two consecutive integers; using a calculator, find the square root of a number to the nearest tenth.

Thinking Skill: Analyzing **Correct Answer:** C

24. Objective 1.08

Solve problems involving exponents and scientific notation.

Thinking Skill: Applying **Correct Answer:** D

25. Objective 1.08

Solve problems involving exponents and scientific notation.

Thinking Skill: Applying **Correct Answer:** C

26. Objective 1.08

Solve problems involving exponents and scientific notation.

Thinking Skill: Integrating **Correct Answer:** C

27. Objective 1.08

Solve problems involving exponents and scientific notation.

Thinking Skill: Applying **Correct Answer:** A

28. Objective 1.09

Determine the absolute value of a number.

Thinking Skill: Analyzing **Correct Answer:** C

29. Objective 1.09

Determine the absolute value of a number.

Thinking Skill: Applying **Correct Answer:** C

Answers to EOG Mathematics Grade 8 Sample Items

Goal 1

- 30. Objective 1.09**
Determine the absolute value of a number.
Thinking Skill: Applying **Correct Answer:** D
- 31. Objective 1.09**
Determine the absolute value of a number.
Thinking Skill: Applying **Correct Answer:** D
- 32. Objective 1.10**
Identify, explain, and apply the commutative, associative, and distributive properties, inverses, and identities in algebraic expressions.
Thinking Skill: Analyzing **Correct Answer:** A
- 33. Objective 1.10**
Identify, explain, and apply the commutative, associative, and distributive properties, inverses, and identities in algebraic expressions.
Thinking Skill: Analyzing **Correct Answer:** A
- 34. Objective 1.10**
Identify, explain, and apply the commutative, associative, and distributive properties, inverses, and identities in algebraic expressions.
Thinking Skill: Analyzing **Correct Answer:** D
- 35. Objective 1.10**
Identify, explain, and apply the commutative, associative, and distributive properties, inverses, and identities in algebraic expressions.
Thinking Skill: Applying **Correct Answer:** D
- 36. Objective 1.11**
Simplify algebraic expressions.
Thinking Skill: Integrating **Correct Answer:** D
- 37. Objective 1.11**
Simplify algebraic expressions.
Thinking Skill: Integrating **Correct Answer:** C
- 38. Objective 1.11**
Simplify algebraic expressions.
Thinking Skill: Integrating **Correct Answer:** D
- 39. Objective 1.11**
Simplify algebraic expressions.
Thinking Skill: Integrating **Correct Answer:** C

Answers to EOG Mathematics Grade 8 Sample Items

Goal 1

40. Objective 1.12

Analyze problems to determine if there is sufficient or extraneous data, select appropriate strategies, and use an organized approach to solve using calculators when appropriate.

Thinking Skill: Applying

Correct Answer: D

41. Objective 1.12

Analyze problems to determine if there is sufficient or extraneous data, select appropriate strategies, and use an organized approach to solve using calculators when appropriate.

Thinking Skill: Analyzing

Correct Answer: A

42. Objective 1.12

Analyze problems to determine if there is sufficient or extraneous data, select appropriate strategies, and use an organized approach to solve using calculators when appropriate.

Thinking Skill: Applying

Correct Answer: B

43. Objective 1.12

Analyze problems to determine if there is sufficient or extraneous data, select appropriate strategies, and use an organized approach to solve using calculators when appropriate.

Thinking Skill: Analyzing

Correct Answer: A