**Math 8 EOG Prep – Day 1 – Scatterplots and Bivariate Data**

2019 Released EOG 3, 25, 32, 35, 45 2015 Released EOG 6, 29, 31, 32, 47, 48, 49, 50

**Match the scatterplots/situations to their associated relationship. Answers can be used more than once.**

**A.** positive association **B.** negative association **C.** no association

**1. 2. 3.**



**4.** What type of correlation ***most likely*** occurs between a person’s age and the number of his or her siblings?

**5.** When the ages of dog owners are plotted against the weight of their dogs, what type of association would likely be shown?

**6.** Which scatterplot has a line that most closely fits the data?

**A. B. C.**





**7.** James asked six classmates about the amount of time they spend outside and the amount of time they spend watching TV on Saturday. He plotted the results on the graph below. Which is the ***best estimate*** for the amount of time someone spends outside if he or she watches 2.5 hours of TV?

**A.** 1.5 hours **B.** 2 hours

**C.** 3 hours **D.** 3.5 hours

**8.** A college student is using the following model to determine the total number of text messages she will have in the inbox in her cell phone, if she does not delete any of the current messages or future messages she receives in the next x days. In the model, *y* represents the total number of text messages in her inbox after *x* days.  **y = 180 + 84x** What does 180 represent in the model?

**A.** The current number of text messages on her phone.

**B.** The maximum number of text messages she can receive in a day.

**C.** The number of text messages she predicts she will receive per day.

**D.** The number of text messages she predicts she will receive in 3 months.

**9.** Morgan randomly gave tickets to each person who attended a carnival. The number of tickets she has remaining, y, after handing out tickets to x people is shown on the graph below. Which equation ***best*** represents the number of tickets remaining, y, after handing out tickets to x people?

**A.** y = 95 – 1.5x

**B.** y = 95 – 2x

**C.** y = 105 – 2x

**D.** y = 110 – 3x

**10.** Each point on the scatter plot below represents the number of hours a student studied for a test and the student's test scores.

Which equation is the closest approximation to the line of best fit?

**A.** y = -10x + 92

**B.** y = 6x + 59

**C.** y = 10x + 45

**D.** y = 15x + 30

**11.** Three hundred students were surveyed to determine what they do after school. The results of the survey are shown in the table. Based on the table, which statement is true?

|  |  |  |  |
| --- | --- | --- | --- |
|   | **Video  Games**  | **Sports**  | **Reading**  |
| **Males**  | 67 | 51 | 31 |
| **Females**  | 47 | 53 | 51 |

**A.** more males than females play sports

**B.** more females than males play video games

**C.** more than twice as many females as males read

**D.** more than twice as many males play video games after school than read

|  |  |  |
| --- | --- | --- |
|   | **Liked broccoli**  | **Disliked broccoli**  |
|  **Males** | 34  | 38  |
|  **Females**  | 23  | 35  |

**12.** Several students were asked if they liked or disliked broccoli. Their responses are in the table below. Based on the table, which statement is true?

**A.** About 47% of those surveyed are male and liked broccoli

**B.** About 18% of those surveyed are female and liked broccoli

**C.** About 40% of those surveyed are male and disliked broccoli

**D.** About 35% of those surveyed are female and disliked broccoli

|  |  |  |
| --- | --- | --- |
|   | **1 hour or more** | **Less than 1 hour** |
| **Boys** | 29 | 31 |
| **Girls** | 36 | 24 |

**13.** Mr. Williams asked his students how long they studied for their last test. The responses are in the table below. Based on the table, ***about*** what percentage of the students studied 1 hour or more for the test?

**A.** 50% **B.** 54% **C.** 65%

**14.** Jackie created the table below to compare the number of matches in which she scored or did not score a goal in both the fall and spring season. In about what percent of games in the fall did Jackie score a goal?

**A.** 33% **B.** 40%

**C.** 50% **D.** 67%

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|   | **Baseball**  | **Soccer**  | **Basketball**  | **Football**  |
| **7th Grade**  |  12 | 14  | 8  | 25  |
| **8th Grade**  |  8 | 12  | 6  | 15  |

 **15.** Studentsin 7th and 8th grade were asked their favorite sport. The results of this survey are shown in the table. Based on the table, which statement is true?

**A.** Over half of the 7th grade students preferred football

**B.** More students preferred basketball than baseball

**C.** About 50% of each grade level preferred soccer

**D.** Over a third of the 8th graders preferred football

**Math 8 EOG Prep – Day 2 – Rational Numbers**

2019 Released EOG 4, 9, 11, 13, 15 2015 Released EOG 7, 8, 9

**1.** Four numbers are given. 6 Which is a list of the numbers from *least* to *greatest*?

**A** **B.**

**C.**  **D.**

**2.**  Which is a proper classification of the number shown? -3.89

**A.** irrational and decimal **B.** irrational and negative

**C.** rational and whole **D.** rational and negative

**3.** For homework, Rio is listing some examples of real numbers in the diagram at the right. Which number did Rio place *incorrectly*?

**A.**  -1 **B.** .5 **C.** 0 **D.** 6

**4.**  Four points are plotted on the number line. Which number represents ?

**5.** Simplify

**A.** 126 **B.** 14 **C.**  **D.** 12.6

**6.** Which of the following numbers is an integer?

**A. B.**  **C.**  **D.**

**7.** Which is the largest value?

**A. B.**  **C.**  **D.**

*A B C D*

**8.** A, B, C, and D are points on the number line. Which point represents ?

**9.** Between which 2 integers is the located?

**A.** 10 and 11 **B.** 11 and 12 **C.** 12 and 13 **D.** 13 and 14

**10.** What is the approximate value of ?

**A.** 18.9 **B.** 23.8 **C.** 54.2 **D.** 178.5

 **EOG Prep – Day 3 – Exponents**

2019 Released EOG 41 2015 Released EOG 10

1. Which of the following expressions is equivalent to 45?

A) 4 x 5 B) 4 + 5 C) 4 + 4 + 4 + 4 + 4 D) 4 x 4 x 4 x 4 x 4

2. How can the following expression be written using exponents? 

A)  B)  C)  D) 

3. Which of the following has the same value as 56 x 5-2?

A) 5-12 B) 5-3 C) 54 D) 58

4. Which expression is equivalent to 75 x 710?

A) 715 B) 750 C) 4915 D) 4950

5. Simplify: 52 ∙5-2

A) 0 B) 1 C) 5 D) 25

6. Which value is equivalent to ?

A) 5 B) 8 C) 35 D) 38

7. Which expression demonstrates the rule used to simplify ?

A) *x*(4 – 2) B)  *x*(4- (-2)) C) *x*(-2 – 4) D) *x*(2–4)

8. Which of these is equivalent to the expression? 

A) 5*a-b* B) 5*a+b* C) 5*a÷b* D) 5*axb*

9. Which expression is equivalent to (9-2)8?

A) -8132 B)  C)  D) 818

10. Which of the following is equivalent to the expression below for all real values of *n* and *k*? (5*n*)*k*

A) 5n+k B) 5n-k C) 5nk D) 5n/k

11. Martha was asked to write *a*48 as a product of two powers with the same base in four different ways, using only positive exponents. Which of the following could be one of Martha’s expressions?

A) *a5∙b8*  B) *a15 ∙ a23* C) (*a*4)12 D) 

12. Which expression is equivalent to ?

A)  B)  C)  D) x9

13. What is the value of ?

A) 25 B) 5 C) 10 D) 625

14. Which of the following is equivalent to ?

A)  B)  C)  D) 

15. Which of the following is **NOT** equivalent to ?

A.  B.  C. 1 D. 0

16. Which of the following is equivalent to the expression: 

A. B.  C.  D. 

**Math 8 EOG Prep – Day 4 – Scientific Notation**

2019 Released EOG 21 2015 Released EOG 1, 16

1. The population of Pennsylvania in 2000 was approximately 12,281,100. What is the population in scientific notation?

A) 1.2281100 x 101 B) 122811 x 102 C) 1.22811 x 107 D) 0.12281100 x 108

2. The total area of Alaska is 591,000 square miles. Which of the following is 591,000 expressed in scientific notation?

A) 591 x 104 B) 5.91 x 105 C) 59.1 x 105 D) 5.91 x106

3. The average distance from the Earth to the sun is 9.296 x 107 miles. The distance written in standard form is:

A) 92,960 miles B) 9,296,000 miles C) 92,960,000 miles D) 92,960,000,000 miles

4. For a science project, Nick found that the width of a human hair is about 1.1 x 10-3 inches. What is this width written in standard form?

A) 0.000011 inches B) 0.00011 inches C) 0.0011 inches D) 0.011 inches

5. Use scientific notation to determine the answer: (2.5 x 103)(6 x 106) =

A) 1.5 x 1010 B) 15 x 1010 C) 1.5 x 1018  D) 15x1018

6. Neptune’s distance from the sun is about 2.8x109 miles. Earth’s distance from the sun is about 30 times shorter. What is Earth’s approximate distance, in miles, from the sun?

A) 5.8x107 B)5.8x108 C) 9.3x107 D) 9.3x108

7. Which of the following measurements would *most likely* be given with a negative exponent in scientific notation?

A) The diameter of a blood cell in centimeters

B) The distance to the Sun in kilometers

C) The weight of a pencil in grams

D) The mass of a rocket in kilograms

8. For what value of *n* is the equation true? 363,600,000 = 3.636 x 10*n*

A) *n* = 8 B)  *n* = 5 C) *n* = 3 D) *n* = 10

9. Simplify:  A) 2.5 x 10-2 B) 2.5 x 10-9 C) 2.5 x 10-10 D) 2.5 x 10-11

10. Which of the following shows the numbers in order from least to greatest?

A) 5.7x103 3.9x10-2 1.8x103 8.2x10-2

B) 8.2x10-2 3.9x10-2 1.8x103 5.7x103

C) 1.8x103 3.9x10-2 5.7x103 8.2x10-2

D) 3.9x10-2 8.2x10-2 1.8x103 5.7x103

11. Charlie converted the number 428,000,000 to scientific notation and wrote the answer as 42.8x107. Which statement explains why Charlie’s answer is *not* correct?

A) Charlie only needed to move the decimal seven places to the left.

B) Charlie needed to move the decimal behind the first non-zero digit.

C) Charlie needed to move the decimal one more place to the left and then change the exponent to an 8.

D) Charlie needed to move the decimal one place to the right then change the exponent to a 6.

**Math 8 EOG Prep – Day 5 – Equations and Systems of Equations**

2019 Released EOG 14, 17, 19, 29 2015 Released EOG 11, 12, 13, 18, 19, 25

**1.** What is the value of x in the equation 13x – 2(6x − 4) = 72?

**A.** 64 **B.** 68 **C.** 76 **D.** 80



**2.** What is the value of x in the equation ?

**A.** -1 **B**. -4.5 **C.** -11 **D.** -16.5

**3.** The perimeter of the rectangle below is 28 ft. What is the value of x?

**A.** 7 **B.** 9 **C.** 18 **D.**  20

**4.** Which equation has infinitely many solutions?

**A.** –5 + 6.2x = 6.2x – 6 **B.** 3x + 10.5 = 10.5 – 3x

**C.** –2.5x – 8 = 8 – 2.5x **D.** –4x – 12 = –12 – 4x

**5.** A gym membership charges an initial fee of $100 plus a $25 fee every month. Another gym only charges $45 every month. After how many months will the total cost for both gyms be the same?

**A.** 2 **B.** 3 **C.** 4 **D.** 5

**6.** Bob works as a plumber. He charges $45.00 for the first hour and $33.75 for each additional hour. Bob was paid $247.50 for his last job. How many hours did Bob work on his last job?

**A.** 3 **B.** 4 **C.** 6 **D.** 7

**7.** The lengths of the sides of a triangle are 2x + 5, x − 3, and 3x + 1. The perimeter of the triangle is 39 in. What are the lengths of the sides?

**A.** 11 in., 3 in., and 7 in. **B.** 15 in., 2 in., and 16 in.

**C.** 17 in., 3 in., and 19 in. **D.** 19 in., 4 in., and 22 in.

**8.** Triangle GHI has the angle measures of G = (2x + 5)°, H = (6x − 10)°, and I = (x + 5)°. What is the actual measurement of angle H?

**A.** 90° **B.** 105° **C.** 110° **D.** 125°

**9.** Which graph shows a system of equations that has a solution of (4, 1)?



**10.** A system of equations is shown. What is the solution to the system? y = 2*x* + 1

**A.** (0, 1) **B.** (1, 2) **C.** (1, 3) **D.** (2, 4) y = x + 2

**11.** A system of equations is shown. What is the solution to the system?

**A.** (2, 1) **B.** (1, -14) **C.** (-1, -4) **D.** (-2, 1)

**12.** A rectangular swimming pool has a width that is 6 feet less than its length. The perimeter of the pool is 84 feet. What is the length of the pool?

**A.** 18 ft **B.** 21 ft **C.** 24 ft **D.** 36 ft

**13.** Jesse bought 10 more pencils than erasers. A pencil costs $0.15, and an eraser costs $0.22. He paid a total of $4.46. How many erasers did Jesse buy?

**A.** 8 **B.** 12 **C.** 18 **D.** 22

**Math 8 EOG Prep – Day 6 – Parallel Lines, Transversals, and Transformations**

2019 Released EOG 16, 20, 31, 36 2015 Released EOG 24, 41, 42

**1.** The coordinate grid shows the location of a floral design and point A. Which sequence of transformations would move the floral design into the same quadrant as point A?

**A.** Translate left 5 units. Reflect over the x-axis.

**B.** Translate left 5 units. Reflect over the y-axis.

**C.** Translate right 5 units. Reflect over the x-axis.

**D.** Translate right 5 units. Reflect over the y-axis.

**2.** Triangle FGH was rotated 90° counterclockwise about the origin. The image has vertices located at F′(–1, –3), G′(2, –2), H′(2, –4). What are the original coordinates of F?

**A.** (-3, 1) **B.** (-1, 3) **C.** (1, -3) **D.** (3, -1)

**3.** Rectangle PQRS will be rotated 90 degrees counterclockwise about the origin. The coordinates of vertex P are (1, 1). What will be the coordinates of the image point P′?

**A.** (1, 1) **B.** (1, -1) **C.** (-1, 1) **D**. (-1, -1)



**4.** Triangle *PQR*,shown below, is reflected across the *y*-axis and then translated 5 units down and 4 units left. What will be the new coordinates of point *Q*, after triangle *PQR* has been transformed?

**A.** (-6, -2) **B.** (-2, -2) **C.** (-2, 3) **D.** (2, -8)

**5.** In the figure below, lines m and n are parallel. Line s is perpendicular to line m. What is the measure of ∠x?

**A.** 60°

**B.** 55°

**C.** 40°

**D.** 35°

**Math 8 EOG Prep – Day 7 – Pythagorean Theorem and Triangles**

2019 Released EOG 22, 28, 34, 40, 42 2015 Released EOG 26, 27, 30, 43, 44, 46



**1.** What is the value of x in the triangle at the right?

**A.** 65 **B.** 90 **C.** 82 **D.** 98

**2.** A soccer field is 100 yards long and 60 yards wide. What is the ***approximate*** length from one corner of the field to the opposite corner of the field?

**A.** 80 yards **B.** 120 yards **C.** 140 yards **D.** 160 yards



**3.** What is the ***approximate*** distance between points T and V on the graph at the right?

**A.** 9 units **B.** 10 units **C.** 11 units

**4.** A wire 13 meters long is attached to a pole and runs 3.5 meters to the ground. ***About*** how high is the wire attached to the pole?

**A.** 3.7 m  **B.** 9.5 m

**C.** 12.5 m **D.** 13.5 m

**5.** Which measurements below are lengths of the sides of a right triangle?

**A.** 10 cm, 24 cm, 39 cm **B.** 15 cm, 24 cm, 28 cm

**C.** 20 cm, 48 cm, 52 cm **D.** 25 cm, 50 cm, 75 cm

**6.** Triangle PQR is shown at the right. What is the value of x?

**A.** 12 **B.** 13 **C.** 25 **D.** 40

**7.** The triangles at the left are similar. What is the value of x?

**A.** 7.5 **B.** 10.5

**C.** 12 **D.** 13

**Math 8 EOG Prep – Day 8 & 9 – Slope and Linear Functions**

2019 Released EOG 1, 2, 5, 6, 7, 8, 10, 12, 18, 23, 33, 37, 38, 39,43

2015 Released EOG 2, 3, 4, 5, 14, 15, 17, 20, 21, 22, 23, 33, 34, 35, 36, 37, 38, 39, 40

**1.** Which table represents a linear function?

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **A.** |

|  |  |
| --- | --- |
| ***x***  | ***y*** |
| 0 | –6 |
| 1 | –2 |
| 2 | 2  |
| 3 | 6 |

 |

 |

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **B.** |

|  |  |
| --- | --- |
| ***x***  | ***y*** |
| 0 | 5 |
| 1  | 7 |
| 2  | 11  |
| 3 | 17 |

 |

 |

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **C.** |

|  |  |
| --- | --- |
| ***x***  | ***y*** |
| 0 | 2 |
| 1 | 4 |
| 2 | 8 |
| 3 | 16 |

 |

 |



**2.** Which scenario would ***best*** match the graph at the right?

**A.** The speed of a skier riding to the top of a mountain and skiing down to the bottom.

**B.** The speed of a child going up to the top of a slide, sitting there for a while, and sliding down the other side.

**C.** The speed of a driver entering the interstate highway, driving at a constant speed, and then exiting the interstate highway.

**3.** A car rental company rents only one type of car. The table shows the cost to rent a car from the company. The rental cost includes a one-time base fee plus a constant rate for each day that a customer rents a car. What is the company’s base fee?

**A.** $13 **B.** $39 **C.** $45 **D.** $59

**4.** Which is an equation of a line that goes through the point (2, 2) and has a y-intercept of 6?

**A.** y = 6x – 10 **B.** y = 2x + 6 **C.** y = –2x + 6

**5.** Pete’s Plumbing charges a flat fee of $28 for a house call and inspection and an additional $35 per hour for any onsite work. Which table represents a cost function with a greater hourly rate than these charges?





**6.** The graph at the right shows a linear relationship. The points shown have whole-number coordinates. Which function models the linear relationship shown on the graph?

**A.**  **B.**

**C.**  **D.**



**7.** This graph shows the change in elevation during Lynn’s hike. Based on the graph, what was the average rate of change in elevation in feet per hour?

**A.** 200 **B.** 300 **C.** 1,700 **D.** 3,000

**Math 8 EOG Prep – Day 10 – Volume**

2019 Released EOG 24, 30, 44 2015 Released EOG 28, 45

**1.** A cylindrical-shaped hole is 42 feet deep and has a diameter of 5 feet. Approximately how large is the hole?

**A.** 210 ft3  **B.** 630 ft3  **C.** 825 ft3 **D.** 3,300 ft3

**2.** A company is going to redesign the cylindrical container it uses to market its product. The volume of the proposed container will be approximately 42.4 cubic inches and the diameter will be 3 inches. What will be the approximate height of the cylinder, rounded to the nearest tenth of an inch?

**A.** 1.5 inches **B.** 4.5 inches **C.** 6.0 inches **D.** 9.0 inches

**3.** Jim is making frozen juice treats that are in the shape of a cone. The molds he bought are each 3 inches (in.) deep with a diameter of 3 in. What is the approximate volume of juice needed for Jim to make 6 juice treats?

**A.** 169.6 in2 **B.** 127.2 in2 **C.** 84.8 in2 **D.** 42.4 in2

**4.** The volume of a cone is   cubic inches. If the radius is 5 inches, what is the height of the cone?

**A.** 1/3 in **B.** 3 in **C.** 7.5 in **D.** 12 in

**5.** When filled, a particular round balloon has a diameter of 14 inches. What is the approximate volume of air needed to fill this balloon?

**A.** 1,078 in3 **B.** 1437 in3 **C.** 8,621 in3 **D.** 11,494 in3

**6.** What is the volume of the compound figure at the right?

**A.** 1,570 cm3 **B.** 3,663.3 cm3

**C.** 4,186.7 cm3 **D.** 5,756.7 cm3