

TABE
Math – D
Pre-Test

KEY

Revised: March 6, 2024

1. D. To find 15% of 215, multiply $0.15 \times \$215 = \32.25 6.RP.3.c
2. A. Count the number of units from the origin, the point at which the vertical and horizontal lines intersect. The Office is located 2 units to the left (-2) and 4 units below (-4) the origin. 6.NS.6.b, 6.NS.6.c
3. C. To find the change in temperature, multiply the change in temperature by the number of hours: $1.8 \times 8 = 14.4^\circ\text{F}$. Since the numbers have the same signs, the answer is a positive number. 7.NS.2.a, 7.NS.2.b, 7.NS.2.c
4. C. $\frac{0.002}{0.00005} = 40$ 8.EE.3
5. C. Divide the penalty by the percent to find the amount of the bill before the penalty; $\$52.50 \div 0.05 = \$1,050.00$ 6.RP.3.c
6. A. Out of the 398 employees who prefer all-hands meetings, 46 are part-time. The relative frequency is $\frac{46}{398} \approx 0.1156$, which rounds to 12%. 8.SP.4
7. B. A reflection is a flip of a figure over a line. 8.G.2
8. C. An elevation that is below sea level would be represented by a negative number. 6.NS.5, 6.NS.6.a
9. B. Subtract the amount trimmed from the original length. $7\frac{3}{4} - 5\frac{1}{4} = 2\frac{2}{4}$, which reduces to $2\frac{1}{2}$ inches. 7.NS.1.c, 7.NS.1.d
10. B. Since $\sqrt{324} = \pm 18$ and length must be positive, the side of the room is 18 feet. 8.EE.2
11. C. Since $\frac{5}{16}$ is 0.3125, the board must be longer than 38.3125. Since $\frac{5}{8}$ is 0.625, a board that is 38.625 could be trimmed down. 6.NS.6.c, 7.NS.2.d
12. C. The ratio of water to bags of concrete, $\frac{y}{x}$, is 5:1. Pick a point on each graph to determine the ratio for the graph. Graph C has the point (1, 5), so it is the correct graph. 6.RP.3.a
13. B. Convert the measurement from feet to meters. $\frac{125 \text{ feet}}{1} \times \frac{0.305 \text{ meters}}{1 \text{ foot}} = 38.125$ meters, which rounds to 38.13 meters. 6.RP.3.d
14. B. The first hour is charged at a higher rate than the remaining hours. So, the total cost is \$25 for the first hour plus \$10 times the total number of hours minus 1. 7.EE.2, 7.EE.4.a
15. D. Since 12^2 equals 144, $\sqrt{150}$ is more than 12. Since 8^2 equals 64, $\sqrt{65}$ is more than 8 but less than 12. 8.NS.2
16. D. Use the Pythagorean Theorem to solve: $8^2 + b^2 = 20^2$; $64 + b^2 = 400$; $b^2 = \sqrt{336} \approx 18.3$ 8.G.7, 8.G.8.
17. B. The closer a probability is to 1, the more likely it is to happen. 0.87 is the closest to 1. 7.SP.5
18. D. Multiply the price of the bookshelves by the number purchased: $\$135 \times 3 = \375 . Then add the price of the lamp to get the subtotal: $\$375 + \$75 = \$480$. To find the sales tax, multiply the sales tax rate, expressed as a decimal number, times the total price: $\$480 \times 0.085 = \40.80 . Add the subtotal to the tax: $\$480 + \$40.80 = \$520.80$. 7.RP.3
19. B. To find the unit rate, divide the y -coordinate of a point by its x -coordinate. Since the point (2, 92) is on the line, $\frac{92}{2} = 46$ miles per hour is the unit rate. 8.EE.5
20. B. On the number line, negative numbers are to the left of zero. When arranged on the number line, the order from left (least/coldest) to right (greatest/warmest) is -3°F (Winter), 15°F (Fall), 16°F (Spring), and 42°F (Summer). 6.NS.6.c
21. C. Add the cost of the boxes of copy paper, 20p, to the amount for the toner, \$125. Since Terrence cannot spend any more than \$225, but he can spend that in total, use the \leq in the inequality. 7.EE.4.b
22. B. The scale is $\frac{3 \text{ in}}{318 \text{ ft}}$. Write the scale in its simplest form by dividing numerator and denominator by 3: $\frac{1 \text{ in}}{106 \text{ ft}}$. 7.G.1
23. B, C, E. The points generally follow a line and decreases from left to right, which is a negative linear association. The point (4, 4) is one outlier, so there are outliers. There are dots grouped together around 9 and 10 hours, so there is clustering. 8.SP.1
24. A, D. The ratio is 6:1 or $\frac{6 \text{ divider sheets}}{1 \text{ binder}}$. Write each ratio as a simplified fraction to find the ones equivalent to $\frac{6}{1}$. $\frac{12}{2} \div \frac{2}{2} = \frac{6}{1}$ and $\frac{36}{6} \div \frac{6}{6} = \frac{6}{1}$. 6.RP.3.a
25. D. Barry's balance is represented by a positive number. Barry's payment is represented by a negative number because it decreases the amount he owes. $\$542.26 + (-\$250.00) = \$292.26$. 7.NS.1.a, 7.NS.1.b
26. C. Because this is a proportional relationship, you can divide any y -value by its corresponding x -value to find the constant of proportionality: $\frac{195 \text{ miles}}{3 \text{ hours}} = 65$ miles per hour. Then multiply the hours by the constant of proportionality to find the missing value: $5 \times 65 = 325$. 7.RP.2.a

27. D. Multiply the length and width by the scale factor.

$$\text{Length: } 12 \times \frac{4}{3} = \frac{48}{3} = 16.$$

$$\text{Width: } 3 \times \frac{4}{3} = \frac{12}{3} = 4. \quad 8.G.4$$

28. B. The modes of \$62 and \$124 do not represent the data, because each of these totals only occurs twice. The mean of \$127 is not the best measure, because of the outliers \$207 and \$305. When the data include outliers, the median is the best measure. The median for this data is \$93. 6.SP.5.d

29. C. Removing the first three pieces reduces the length by $3 \times 1\frac{1}{4}$ feet, or $3\frac{3}{4}$ feet. So, the remaining length is $10 - 3\frac{3}{4} = 6\frac{1}{4}$ feet. Write an inequality: $2x \leq 6\frac{1}{4}$. Solve for x .

$$x \leq 6\frac{1}{4} \div 2$$

$$x \leq \frac{25}{4} \times \frac{1}{2}$$

$$x \leq \frac{25}{8}$$

$$x \leq 3\frac{1}{4}$$

The maximum number of whole 2-foot pieces is 3. 7.EE.3

30. D. Find the absolute value of each transaction. The largest amount of money is 975. 6.NS.7.b, 6.NS.7.c, 6.NS.7.d

31. A. The sum of supplementary angles is 180° . Write an equation and solve for x .

$$92 + 4x + 4 = 180$$

$$96 + 4x = 180$$

$$4x = 84$$

$$x = 21 \quad 7.G.5$$

32. A, C. Set up proportions for each value in the table.

Use s for same area: $\frac{48}{100} = \frac{s}{4,500}$. Cross multiply and solve for s . $100s = 216,000$; $s = 2,160$. Based on the sample, 2,160 people would prefer to stay in the same area. Use n for north. $\frac{20}{100} = \frac{n}{4,500}$. Cross multiply and solve for n . $100n = 90,000$; $n = 900$. Based on the sample, 900 people would prefer for the new office to be North. 7.SP.2

33. B. Divide the number of arrangements by the time it took: $6 \div \frac{3}{4} = 8$ arrangements per hour. 7.RP.1, 6.RP.3.b

34. C. For each set of coordinate points, find the absolute value of the difference between the coordinate values that differ:

$$|-9 - (-21)| = |-9 + 21| = |12| = 12$$

(2, -21) is 12 units down from (2, -9) 6.NS.8

35. A. To find the constant of proportionality, k , in the equation $\$60 = k \times 5$, divide the total cost by the number of yards of fabric purchased: $\frac{60}{5} = 12$. 7.RP.2.b

36. B. Segment 2 of the graph is not a straight line, and it is rising from left to right. 8.F.5

37. C. $V = 12 \text{ ft} \times 8 \text{ ft} \times 6 \text{ ft} = 576 \text{ ft}^3$ 7.G.6

38. B, C. Since 3 is to the right of -5 on the number line, $3 > -5$ and $-5 < 3$. 6.NS.7.a

39. D. The y -intercept tells you the initial amount in the account: \$15,000. The slope of the line is \$275, which is the amount added to the account each week. 8.SP.2, 8.SP.3

40. D. Using elimination, all terms in the bottom equation can be multiplied by a factor of -1 . This gives

$$-5 = 4x - y$$

$$-2 = +3x + y$$

The sum is $-7 = 7x$, which simplifies to $-1 = x$. Evaluating the first equation for a x -value of -1 gives $-5 = 4(-1) - y$, which simplifies to $1 = y$. So, the solution is the point $(-1, 1)$.

8.EE.8.b

41. B. This is the only equation that can be written in slope-intercept form, $y = mx + b$. Notice that the variable x is not raised to any power. 8.F.3

42. B. $A = (13 \text{ ft})(25 \text{ ft}) = 325 \text{ ft}^2$. Divide the area by 65 ft^2 . $325 \div 65 = 5$. 5 boxes are needed. 7.G.6

43. D. Use the power of a power rule and the negative exponent rule.

$$(3b^4)^{-2} = 3^{-2}b^{4 \times -2} = 3^{-2}b^{-8} = \frac{1}{3^2b^8} = \frac{1}{9b^8}$$

8.EE.1

44. C. First, use two points on the graph to find the slope. As you move on the graph from (0, 1) to (1, 3), you go up 2 units and to the right 1

unit. The slope is $\frac{\text{change in } y}{\text{change in } x}$ or $\frac{2}{1} = 2$. Or you can use the formula $m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{3 - 1}{1 - 0} = 2$. Second,

find the initial value, b , which is the y -value for the point where the line crosses the y -axis: $b = 1$. Substitute the values for m and b in the equation $y = mx + b$. The equation is $y = 2x + 1$. 8.F.4

45. D. $A = 3.14(13 \text{ inches})^2 \approx 530.66$ square inches. 7.G.4, 7.G.6

46. C. The unit rate, or constant of proportionality, is 34.00, so the direct proportion equation is $c = 34t$. 7.RP.2.c, 7.RP.2.d

47. C. The number of possible combinations is equal to $3 \times 2 \times 10$, or 60. 7.SP.8.a, 7.SP.8.b

48. B. The mean price is greater for Group 2 by \$1.50. The variation is greater for Group 1 since the mean absolute deviation is 0.5 greater in the group. 7.SP.4

49. B. There are 6 yellow paper clips out of a total of 25 paper clips. The theoretical probability is $\frac{6}{25} = 0.24$, or 24% 7.SP.7.a, 7.SP.7.b

50. C. Use the formula to set up an equation, substitute the known values, and then solve for h .

$$180 = 2(8 \text{ ft})(6 \text{ ft}) + 2(8 \text{ ft})(h) + 2(6 \text{ ft})(h)$$

$$180 = 96 + 16h + 12h$$

$$180 = 96 + 28h$$

$$84 = 28h$$

$$3 = h \quad 7.G.6$$

51. A. The y -intercept for $y = -x + 3$ is $(0, 3)$. Using -1 as the slope, other points on the line include $(-2, 5)$, $(-4, 7)$, and $(3, 0)$. The y -intercept for $y = -2x - 1$ is $(0, -1)$. Using -2 as the slope, other points on the line include $(-2, 3)$, $(-4, 7)$, and $(1, -3)$. Graphing the two equations shows the point of intersection to be $(-4, 7)$. 8.EE.8.a, 8.EE.8.c