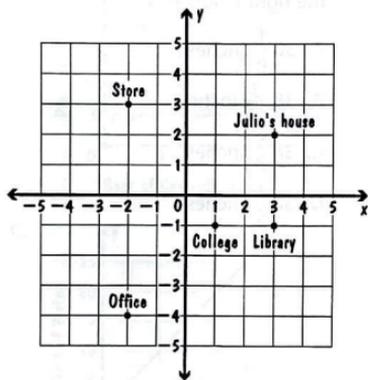


- 1 A store gives a 15% discount to reward members. What is the discount on \$215 worth of merchandise?
- A. \$10.75  
B. \$16.13  
C. \$25.80  
D. \$32.25
- 2 What are the coordinates for the Office?



- A.  $(-2, -4)$   
B.  $(-2, 3)$   
C.  $(3, 2)$   
D.  $(3, -1)$
- 3 When the electricity goes out on a summer day, the temperature in a building rises  $1.8^\circ\text{F}$  every hour. What is the change in temperature after 8 hours?
- A.  $-14.4^\circ\text{F}$   
B.  $-6.4^\circ\text{F}$   
C.  $14.4^\circ\text{F}$   
D.  $16.2^\circ\text{F}$

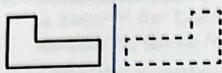
- 4 The mass of Material A is  $2 \times 10^{-3}$  grams. The mass of Material B is  $5 \times 10^{-5}$  grams. Approximately how many times heavier is Material A?
- A. 0.025  
B. 4  
C. 40  
D. 400
- 5 A 5% penalty is added to the bill for a late payment. If the penalty is \$52.50, how much was the original bill?
- A. \$105.50  
B. \$262.50  
C. \$1,050.00  
D. \$2,625.00
- 6 The two-way table shows the results of a survey that asked employees about their preferred means of communication for company announcements. Use the relative frequencies to identify the valid conclusion.

	All-hands meeting	Department meeting	Email	Total
Full-time employees	352	127	75	554
Part-time employees	46	23	12	81
Total	398	150	87	635

Which statement is true?

- A. About 12% of those who prefer all-hands meetings are part-time employees.  
B. About 15% of those who prefer email are full-time employees.  
C. About 23% of full-time employees prefer email.  
D. About 57% of part-time employees prefer department meetings.

- 7 Which transformation is shown by the figure?



- A. translation  
 B. reflection  
 C. rotation  $90^\circ$  clockwise  
 D. rotation  $180^\circ$

- 8 Which situation would be represented with a negative number?

- A. The average low temperature in Sedona, Arizona in February is  $36^\circ\text{F}$ .  
 B. The height of the Space Needle in Seattle is 605 feet.  
 C. Death Valley is 282 feet below sea level.  
 D. The Shanghai Maglev train can travel up to 267 miles per hour.

- 9 Lewis has a board that measures  $7\frac{3}{4}$  inches. He trims  $5\frac{1}{4}$  inches from the board. How long is the board after it is trimmed?

- A.  $2\frac{1}{4}$  in.  
 B.  $2\frac{1}{2}$  in.  
 C.  $2\frac{3}{4}$  in.  
 D.  $3\frac{1}{4}$  in.

- 10 A square room has an area of 324 square feet. What is the length of a side of the room?

Area of a square:  $A = s^2$ , where  $s$  is the side length.

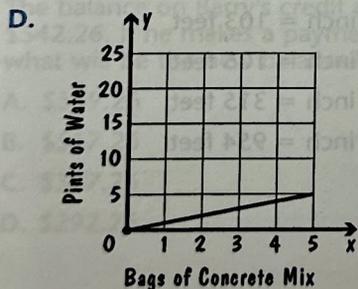
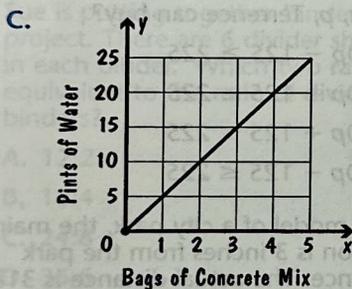
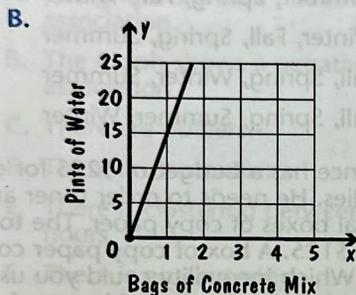
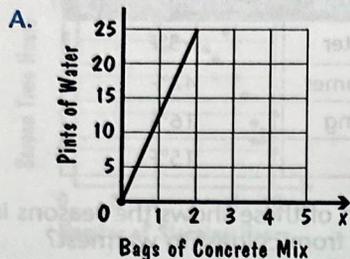
- A. -18 feet  
 B. 18 feet  
 C. 81 feet  
 D. -81 feet

- 11 Maureen needs a piece of wood that measures  $38\frac{5}{16}$  inches to frame a window.

Which of these boards could she trim to the right height?

- A.  $38\frac{1}{8}$  inches  
 B.  $38\frac{3}{16}$  inches  
 C.  $38\frac{5}{8}$  inches  
 D.  $38\frac{1}{4}$  inches

- 12 Neal has several bags of concrete mix. He needs to add 5 pints of water for every bag of concrete. Which of the following graphs represents this relationship?



- 13 At 60 miles per hour, it takes a car 125 feet to come to a complete stop. Approximately how many meters does it take the car to stop? Use 1 foot = 0.305 meters.

- A. 18.3 meters  
 B. 38.13 meters  
 C. 196.72 meters  
 D. 409.84 meters

- 14 WaterSports rents kayaks. The first hour costs \$25 and each additional hour costs \$10. Let  $h$  represent the number of hours. Which expression represents the total cost of renting a kayak?

- A.  $25 - 10(h - 1)$   
 B.  $25 + 10(h - 1)$   
 C.  $25 + 10(h + 1)$   
 D.  $25 - 10(h + 1)$

- 15 Marcus is creating a mosaic with tiles that are right triangles. He is sorting the tiles based on the length of the hypotenuse of each tile.

Which of these shows the lengths in order from GREATEST to LEAST?

- A. 8,  $\sqrt{65}$ , 6,  $\sqrt{150}$ , 12  
 B. 6, 8,  $\sqrt{65}$ , 12,  $\sqrt{150}$   
 C.  $\sqrt{150}$ , 12, 8,  $\sqrt{65}$ , 6  
 D.  $\sqrt{150}$ , 12,  $\sqrt{65}$ , 8, 6

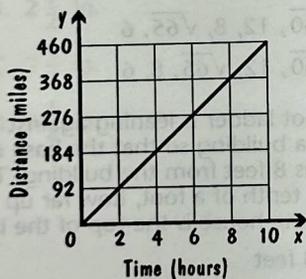
- 16 A 20-foot ladder is leaning against the side of a building so that the base of the ladder is 8 feet from the building. To the nearest tenth of a foot, how far up the side of the house is the top of the ladder?

- A. 19.8 feet  
 B. 19.6 feet  
 C. 18.5 feet  
 D. 18.3 feet

- 17 The table shows the probability of vendors attending a conference. Which vendor is most likely to attend?

Vendor	Probability of attending
Vendor 1	0.72
Vendor 2	0.87
Vendor 3	0.28
Vendor 4	0.50

- A. Vendor 1  
 B. Vendor 2  
 C. Vendor 3  
 D. Vendor 4
- 18 Kendra buys 3 bookshelves for \$135 each and a lamp for \$75. The sales tax rate is 8.5%. What is the total cost of Kendra's purchase including tax?
- A. \$480.00  
 B. \$484.80  
 C. \$488.25  
 D. \$520.80
- 19 The graph shows a proportional relationship. What is the unit rate for the proportional relationship?



- A. 23 miles per hour  
 B. 46 miles per hour  
 C. 48 miles per hour  
 D. 92 miles per hour

- 20 The following table shows the average annual seasonal temperatures at Denali Park Headquarters.

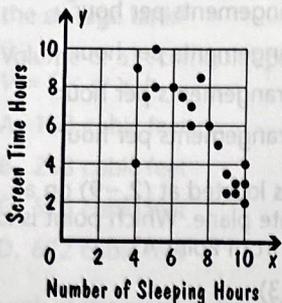
Season	Low Temperature
Winter	$-3^{\circ}\text{F}$
Summer	$42^{\circ}\text{F}$
Spring	$16^{\circ}\text{F}$
Fall	$15^{\circ}\text{F}$

Which of these shows the seasons in order from coldest to warmest?

- A. Summer, Spring, Fall, Winter  
 B. Winter, Fall, Spring, Summer  
 C. Fall, Spring, Winter, Summer  
 D. Fall, Spring, Summer, Winter
- 21 Terrence has a budget of \$225 for office supplies. He needs to order toner and several boxes of copy paper. The toner costs \$125. A box of copy paper costs \$20. Which inequality could you use to determine the number of boxes of copy paper,  $p$ , Terrence can buy?
- A.  $20p - 125 \geq 225$   
 B.  $20p + 125 \geq 225$   
 C.  $20p + 125 \leq 225$   
 D.  $20p - 125 \leq 225$
- 22 On a model of a city park, the main pavilion is 3 inches from the park entrance. The actual distance is 318 feet. What is the scale of the model?

- A. 1 inch = 103 feet  
 B. 1 inch = 106 feet  
 C. 1 inch = 315 feet  
 D. 1 inch = 954 feet

- 23 Which three of these best describe the scatter plot?



- A. The graph shows a positive linear association.  
 B. The graph shows a negative linear association.  
 C. There are outliers.  
 D. There are no outliers.  
 E. There is clustering between 9 and 10 hours.  
 F. There is no clustering.

- 24 Sue is putting together binders for a project. There are 6 divider sheets used in each binder. Which two ratios are equivalent to the ratio of divider sheets to binders?

- A. 12:2  
 B. 18:4  
 C. 24:8  
 D. 36:6

- 25 The balance on Barry's credit card is \$542.26. If he makes a payment of \$250, what will be the new balance?

- A. \$539.26  
 B. \$517.26  
 C. \$337.26  
 D. \$292.26

- 26 The relationship shown in the table is proportional. What value is missing in the table?

Hours	Miles Traveled
3	195
5	?
7	455
9	585

- A. 275  
 B. 300  
 C. 325  
 D. 350
- 27 A rectangle has a length of 12 inches and a width of 3 inches. The rectangle will be enlarged by a scale factor of  $\frac{4}{3}$ . What are the dimensions of the enlarged image?
- A. 48 inches by 12 inches  
 B. 36 inches by 9 inches  
 C. 12 inches by 4 inches  
 D. 16 inches by 4 inches

- 28 The data show the last 9 days of a wait staff's nightly tips:
- \$62, \$80, \$124, \$62, \$124, \$207, \$93, \$305, \$86.

Which measure of center best represents the data?

- A. The mode of \$62  
 B. The median of \$93  
 C. The mode of \$124  
 D. The mean of \$127
- 29 A piece of pipe is 10 feet long. Three pieces  $1\frac{1}{4}$  feet long are cut off. What is the maximum number of 2-foot pieces that can be cut from the remaining piece?
- A. 1 piece  
 B. 2 pieces  
 C. 3 pieces  
 D. 4 pieces

- 30 Jess made the following transactions at the bank.

Deposit	450
Withdrawal	-75
Deposit	36
Deposit	800
Withdrawal	-975

Which transaction represents the largest amount of money?

- A. Deposit of 450  
 B. Withdrawal of -75  
 C. Deposit of 800  
 D. Withdrawal of -975
- 31 One angle in a pair of supplementary angles measures  $92^\circ$  and the other measures  $(4x + 4)$ . What is the value of  $x$ ?

- A.  $21^\circ$                       B.  $23^\circ$   
 C.  $66^\circ$                       D.  $88^\circ$

- 32 A random sample of 100 employees out of the population of 4,500 employees are surveyed about their location preference for a new office.

Location Preference	Number of Employees
Same area	48
Downtown	18
North	20
West	14

Based on these results, which statements are valid conclusions? Select the two that apply.

- A. There are 2,160 employees who would prefer the new office to be located in the same area.  
 B. There are 990 employees who would prefer the new office to be located downtown.  
 C. There are 900 employees who would prefer the new office to be located north.  
 D. There are 1,400 employees who would prefer the new office to be located west.

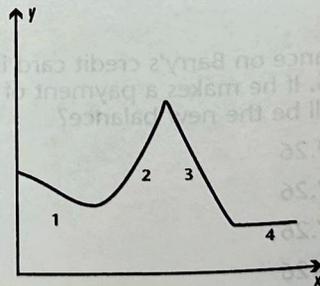
- 33 A florist can make 6 arrangements in  $\frac{3}{4}$  hour. At what rate does the florist work?
- A. 6 arrangements per hour  
 B. 8 arrangements per hour  
 C. 24 arrangements per hour  
 D. 45 arrangements per hour

- 34 Point A is located at  $(2, -9)$  on a coordinate plane. Which point is located 12 units from Point A?
- A.  $(-2, 3)$   
 B.  $(15, -9)$   
 C.  $(2, -21)$   
 D.  $(-10, 9)$

- 35 The Fabric Store is having a sale. Kevin pays \$60 to purchase 5 yards of fabric. The total cost is proportional to the number of yards of fabric purchased. What is the constant of proportionality?

Direct proportion equation:  $y = kx$ , where  $k$  is the constant of proportionality.

- A. 12  
 B. 13  
 C. 15  
 D. 18
- 36 Which segment of the graph is nonlinear and increasing?



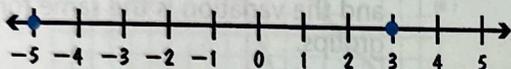
- A. Segment 1  
 B. Segment 2  
 C. Segment 3  
 D. Segment 4

- 37 A storage tank is a rectangular prism. Its length is 12 feet, its width is 8 feet, and its height is 6 feet. What is the volume of the storage tank?

Volume of a rectangular prism:  
 $V = l \times w \times h$

- A. 168 cubic feet
- B. 288 cubic feet
- C. 576 cubic feet
- D. 672 cubic feet

- 38 Look at the number line. Which two of these statements are true?



- A.  $3 < -5$
- B.  $3 > -5$
- C.  $-5 < 3$
- D.  $-5 > 3$

- 39 The amount in a savings account ( $y$ ) after  $x$  weeks is represented by the equation  $y = 275x + 15,000$ . Which best describes the meaning of the  $y$ -intercept and slope in this situation?

- A. The savings account starts with \$275 and increases by \$15,000 each week.
- B. The savings account starts with \$275 and decreases by \$15,000 each week.
- C. The savings account starts with \$15,000 and decreases by \$275 each week.
- D. The savings account starts with \$15,000 and increases by \$275 each week.

- 40 Solve the system of equations using elimination.

$$\begin{aligned} -5 &= 4x - y \\ 2 &= -3x - y \end{aligned}$$

- A. (0, 5)
- B. (0, -2)
- C. (1, -1)
- D. (-1, 1)

- 41 Which of the following equations represents a linear function?

- A.  $y = 2x^6$
- B.  $5x + 3y = 15$
- C.  $y = \sqrt{3x + 18}$
- D.  $y = x^2 - 16$

- 42 A box of flooring will cover an area of 65 square feet. If Raul's kitchen is 13 feet by 25 feet, how many boxes of flooring will he need to buy?

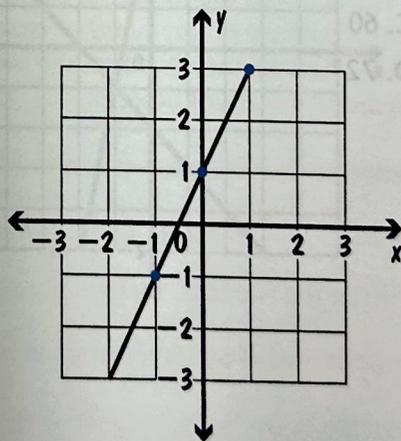
Area of a rectangle:  $A = l \times w$

- A. 3 boxes
- B. 5 boxes
- C. 7 boxes
- D. 8 boxes

- 43 Simplify  $(3b^4)^{-2}$ .

- A.  $6b^6$
- B.  $9b^8$
- C.  $\frac{1}{6b^6}$
- D.  $\frac{1}{9b^8}$

- 44 Which equation models the line shown in the graph?



- A.  $y = x + \frac{1}{2}$
- B.  $y = x + 2$
- C.  $y = 2x + 1$
- D.  $y = \frac{1}{2}x + 1$

- 45 A circular mirror has a radius of 13 inches. What is the approximate area? Use 3.14 for  $\pi$ .

Area of a circle:  $A = \pi r^2$

- A. 40.82 square inches  
B. 81.64 square inches  
C. 128.17 square inches  
D. 530.66 square inches
- 46 A hardware store charges \$34.00 per hour to rent a small tile saw. What is the equation that shows the relationship between the cost  $c$  in dollars and the time  $t$  in hours?
- A.  $c = \frac{34}{t}$   
B.  $c = \frac{t}{34}$   
C.  $c = 34t$   
D.  $c = 34 + t$
- 47 A food truck offers 3 pizza sizes, 2 types of sauce, and 10 toppings. How many possible ways can a customer order a pizza?
- A. 17  
B. 25  
C. 60  
D. 72

- 48 The cost of lunch was tracked for two groups of employees for one week. The mean cost of lunch for Group 1 is \$12.75, and the mean absolute deviation (MAD) is 1.6. The mean cost of lunch for Group 2 is \$14.25, and the MAD is 1.1. Which of the following is an accurate comparison of the two populations, or groups?

- A. The mean price is greater for Group 1, and the variation is greater for Group 2.  
B. The mean price is greater for Group 2, and the variation is greater for Group 1.  
C. The mean price is greater for Group 2, and the variation is the same for both groups.  
D. The mean price and the variation are similar for both groups.
- 49 Lana has a box of colored paper clips. There are 4 blue paper clips, 15 red paper clips, and 6 yellow paper clips. What is the probability of randomly selecting a yellow paper clip?

- A. 16%  
B. 24%  
C. 30%  
D. 60%
- 50 A base of a sculpture is a rectangular prism with a surface area of 180 square feet. If the pedestal is 8 feet long and 6 feet wide, how high is it?

Surface area of a rectangular prism:

$$SA = 2lw + 2lh + 2wh$$

- A. 2 ft  
B. 2.5 ft  
C. 3 ft  
D. 3.5 ft

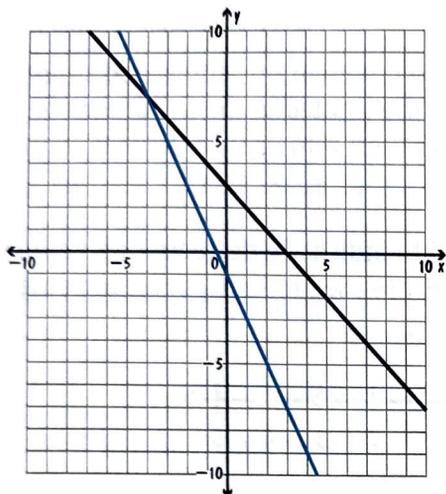
51 Manja graphed the following system of equations:

$$y = -x + 3$$

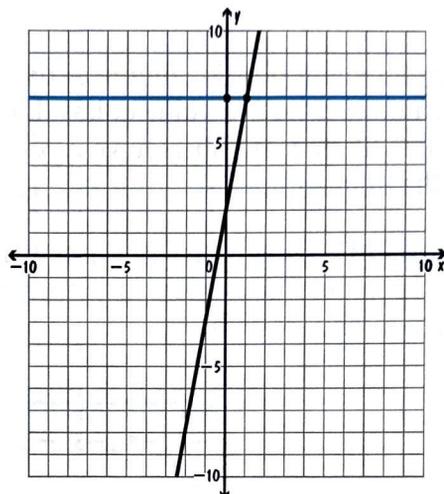
$$y = -2x - 1$$

Which of the following represents the solution and the graphs for the system of equations?

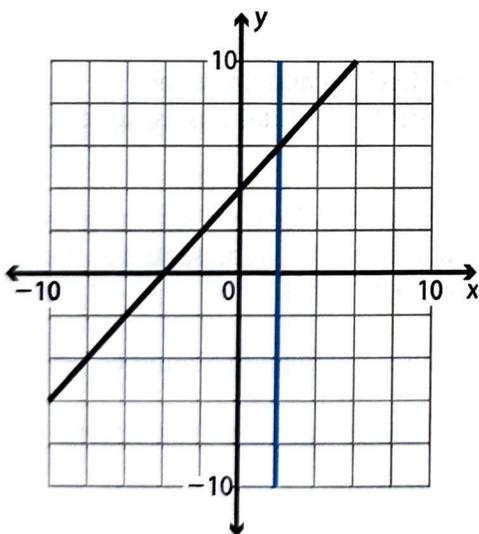
A.  $(-4, 7)$



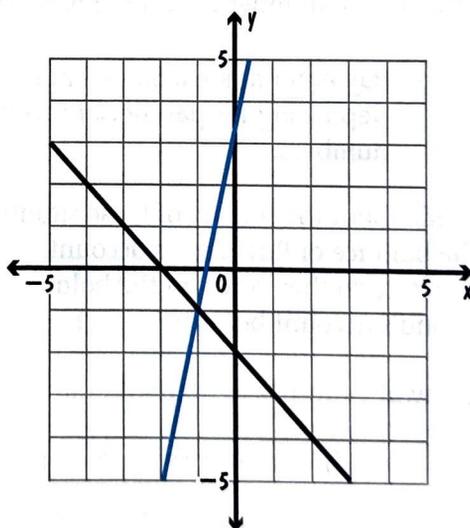
B.  $(1, 7)$



C.  $(2, 6)$



D.  $(-1, -1)$



## Level D

### Pretest

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.IF.2, 7.IF.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  $-3^\circ\text{F}$  (Winter),  $15^\circ\text{F}$  (Fall),  $16^\circ\text{F}$  (Spring), and  $42^\circ\text{F}$  (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

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

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

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

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

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

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

A. The sum of supplementary angles is  $180^\circ$ . Write an equation and solve for  $x$ .

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

$$96 + 4x = 180$$

$$4x = 84$$

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

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

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

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

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

$$(2, -21) \text{ is 12 units down from } (2, -9) \quad 6.NS.8$$

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  $65 \text{ ft}^2$ .  $325 \div 65 = 5$ . 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

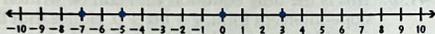
48. B. The mean price is greater for Group 2 by \$1.50. The variation is greater for Group 1 since the mean absolute deviation is 0.5 greater in the group. 7.SP.4

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
9. D. An elevation of 1,237 is above sea level and would be represented by a positive number. A dive of 15 meters below sea level would be represented by a negative number.
10. D. Opposite numbers have the same digits but different signs, so the opposite of 37 is  $-37$ .
11. D. The opposite of the opposite of a number is the number itself, so for the opposite of the opposite of  $n$  to be a positive number,  $n$  must be a positive number, in this case 21.
12. C. The opposite of 52 is  $-52$  which would be represented by a depth below sea level.
13. B. If the checking account is overdrawn, it has a negative balance. To bring the account to zero you would have to add the opposite, or 42, to the account.
14. D. A depth below sea level is represented as a negative number  $(-1,300)$ , and altitude is represented as a positive number  $(35,000)$ .

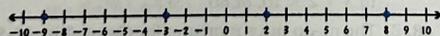
## Lesson 1 Positive and Negative Numbers

(6.NS.5, 6.NS.6.a)

1. D. The opposite of each number is a number with the same digits but a different sign, as represented below.



2. D. A temperature of  $136^\circ\text{F}$  is a positive number because it is greater than zero and would be represented as 136. A temperature of  $126^\circ\text{F}$  below zero would be represented as a negative number.
3. C. 10 is greater than zero and would appear to the right of zero on the number line.  $-10$  is less than zero and would appear to the left of zero on the number line.
4. C. Because the temperature in Prospect Creek, Alaska is  $80^\circ\text{F}$  below zero, a number less than zero, it would be represented as a negative number.
5. B. Opposite numbers have the same digits but different signs.
6. C. The opposite of the opposite of a number is the number itself, so the opposite of the opposite of 25 is 25.
7. B. Because the submarine is 1,500 below sea level, it would be represented by the negative number  $-1,500$ .
8. B. The opposite of each number is a number with the same digits but a different sign, as represented below.



## Lesson 2 Compare and Order Whole Numbers

(6.NS.7.b)

1. A. Since  $3 > 2$ , Zander has enough butter to make the recipe.
2. C. For each set of heights, subtract Height A from Height B to determine the growth of each sunflower:  $40 - 3 = 37$ ,  $39 - 3 = 36$ ,  $42 - 4 = 38$ ,  $40 - 5 = 35$ . Next, compare and order the numbers from least to greatest: 35 (4), 36 (2), 37 (1), 38 (3).
3. A. Since 17 is greater than 16, Maya goes faster than Victoria.
4. D. Order the amount saved by each person from greatest to least: 177 (Sally), 174 (Ron), 173 (Autumn), 172 (Jasmine). So, Sally has saved the most money and Jasmine has saved the least money.
5. D. Because  $-8^\circ\text{F}$  represents the temperature on Sunday, and  $-12$  represents the temperature on Saturday, and  $-12$  is less than  $-8$ , the inequality represents that the temperatures on Sunday is greater than the temperature on Saturday, which means that it was warmer on Sunday than it was on Saturday.
6. A. On the number line negative numbers are to the left of zero.  $-15$  is less than  $-2$  because it lies to the left of  $-2$  on the number line. 2 is greater than  $-2$  because it lies to the right of  $-2$ .
7. D. On the number line positive numbers lie to the right of zero. 28 is greater than 16 because it lies to the right of 16 on the number line.  $-18$  is less than 16 because  $-18$  lies to the left of 16 on the number line.
8. D. Since  $-21$  is to the right of  $-39$  on the number line,  $-21 > -39$ .

**Instructions:** This chart can help you determine your strengths and weaknesses on the math skills assessed on the TABE 11 & 12 test. Use the Answers and Explanations starting on page 180 to check your answers to the test. Then, place an X next to the item numbers you missed. Review the lessons identified for any missed items.

Pretest Item	Correct/Incorrect	For incorrect items, review the following lesson
1		Lesson 24
2		Lesson 5
3		Lesson 9
4		Lesson 16
5		Lesson 25
6		Lesson 39
7		Lesson 48
8		Lesson 1
9		Lesson 8
10		Lesson 17
11		Lesson 3
12		Lesson 23
13		Lesson 26
14		Lesson 11
15		Lesson 10
16		Lesson 51
17		Lesson 40
18		Lesson 27
19		Lesson 18
20		Lesson 2
21		Lesson 13
22		Lesson 50
23		Lesson 37
24		Lesson 22
25		Lesson 7
26		Lesson 28
27		Lesson 49

Pretest Item	Correct/Incorrect	For incorrect items, review the following lesson
28		Lesson 34
29		Lesson 14
30		Lesson 4
31		Lesson 47
32		Lesson 35
33		Lesson 21
34		Lesson 6
35		Lesson 29
36		Lesson 33
37		Lesson 45
38		Lesson 12
39		Lesson 38
40		Lesson 20
41		Lesson 31
42		Lesson 44
43		Lesson 15
44		Lesson 32
45		Lesson 43
46		Lesson 30
47		Lesson 42
48		Lesson 36
49		Lesson 41
50		Lesson 46
51		Lesson 19

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