# Summer Math Assignment for Incoming Algebra 8th Grade

**Multiple Choice**
*Identify the choice that best completes the statement or answers the question.*

_____ 1. Write a word phrase that can be represented by $b - 6$.
  a. the difference of 6 and $b$
  b. the quotient of a number $b$ and 6
  c. 6 more than a number $b$
  d. 6 less than a number $b$

_____ 2. Which word phrase could represent the variable expression $2p + 3$?
  a. three more than Sam's age doubled
  b. twice Sam's age times three
  c. half Sam's age times three
  d. three times Sam's age

**Simplify.**

_____ 3. $17 - 6 \cdot 10 \div 2 + 12$
  a. 27.8
  b. 59
  c. 67
  d. $-1$

_____ 4. $\dfrac{1}{4} + \dfrac{5}{6} + \dfrac{3}{8}$
  a. $1\dfrac{11}{24}$
  b. $1\dfrac{5}{24}$
  c. $\dfrac{1}{2}$
  d. $3\dfrac{3}{4}$

_____ 5. $\dfrac{3}{7} - \dfrac{4}{m}$
  a. $\dfrac{3m - 28}{7m}$
  b. $-\dfrac{1}{7m}$
  c. $-\dfrac{25}{7m}$
  d. $-\dfrac{25}{7}$

**Evaluate.**

_____ 6. $47 + 2d$, for $d = 3$
  a. 138
  b. 53
  c. 139
  d. 54

**Compare. Use >, <, or = to complete the statement.**

_____ 7. $|-10|$ ■ $|11|$

  a. >
  b. =
  c. <

**Find the sum.**

_____ 8. $172 + (-167) + (-10) + (-144)$
  a. $-129$
  b. $-149$
  c. 185
  d. 139

_____ 9. A submarine at the surface dives 375 ft and then another 175 ft. Express the final depth as an integer.
    a.   −525 ft        b.   −550 ft        c.   550 ft        d.   525 ft

_____ 10. A checking account is overdrawn if it has a negative balance. Marc's account is overdrawn by $45. What will the balance be after he deposits $170 and writes a check for $59?
    a.   −$184        b.   −$156        c.   $184        d.   $66

**In which quadrant does the point lie? Write the coordinates of the point.**
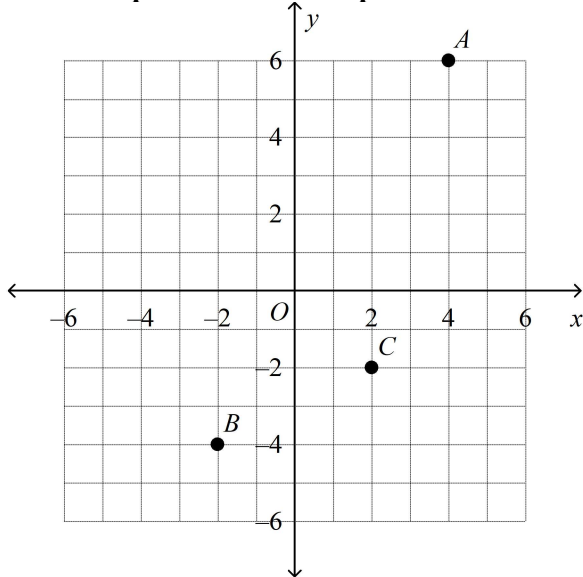


_____ 11. $C$
    a.   quadrant IV; ( −2, 2)           c.   quadrant III; ( 2, −2)
    b.   quadrant III; ( −2, 2)           d.   quadrant IV; ( 2, −2)

_____ 12. Identify the underlined place in 83.5851. Then round the number to that place.
    a.   thousandths; 83.58          c.   hundredths; 83.58
    b.   hundredths; 83.59          d.   thousandths; 83.59

_____ 13. For which set of data is the mean 8.1?
    a.   6.6, 7.5, 8.1, 9.2, 9.8          c.   4.2, 6.7, 8.1, 5.5, 9.1
    b.   8.1, 8.1, 8.7, 8.8, 9.9          d.   8.5, 8.0, 8.0, 9.0, 7.0

_____ 14. For which set of data is the median 15?
    a.   89, 75, 90, 15, 74, 88, 89        c.   14, 15, 15, 15, 18, 18, 19, 19, 20
    b.   23, 35, 77, 81, 64, 15, 44        d.   8, 20, 17, 21, 14, 15, 9

_____ 15. For which set of data is the mode 3?
    a.   6, 2, 7, 6, 6, 6, 3, 1, 3, 9, 3        c.   3, 12, 8, 5, 1, 4, 11, 13, 11, 2
    b.   5, 7, 3, 8, 4, 3, 5, 6, 1, 3, 6        d.   0, 1, 1, 2, 2, 3, 6, 8, 8, 9, 9

_____ 16. Which set of data has a mean of 6 and a mode of 5?
    a.   5, 12, 1, 5, 7        b.   3, 8, 5, 9, 10        c.   2, 11, 5, 9, 3        d.   10, 7, 5, 8, 5

**Solve the equation.**

_____  17.  $39.7 + b + 30.1 = 165.288$
  a.   174.888          b.   95.488          c.   235.088          d.   155.688

_____  18.  $-6 + 3x = -9$
  a.   −1          b.   −6          c.   −5          d.   −3

_____  19.  $-3x + 6 = -9$
  a.   −3          b.   5          c.   3          d.   1

_____  20.  $-\dfrac{1}{3}m - 7 = 5$
  a.   −4          b.   −15          c.   −36          d.   6

_____  21.  $\dfrac{4}{9}n + 6 = \dfrac{4}{3}$
  a.   $10\dfrac{1}{2}$          b.   $16\dfrac{1}{2}$          c.   $-4\dfrac{2}{3}$          d.   $-10\dfrac{1}{2}$

_____  22.  $x + 9 = 5(4x - 2)$
  a.   $\dfrac{11}{19}$          b.   −1          c.   1          d.   $-\dfrac{1}{19}$

_____  23.  Ichiro Suzuki's batting average in 2001 was .350. The all-time American League leading hitter was George Sisler of St. Louis in 1922. Write and solve an equation to find Sisler's batting average that year, given that his average $x$ was .072 more than Ichiro Suzuki's average in 2001.
  a.   $x - .350 = .072$; .278          c.   $x - .072 = .350$; .422
  b.   $x + .072 = .350$; .278          d.   $x + .072 = .350$; .422

_____  24.  Which measurement is equivalent to 10 g?
  a.   1 dag          b.   1 dg          c.   1 cg          d.   1 hg

**Find the least common multiple.**

_____  25.  $3x^2$, $12y$, and $10x^3y^3$
  a.   $60x^3y^3$          b.   $60x^5y^4$          c.   $25x^5y^4$          d.   $360x^3y^3$

**Compare the fractions.**

_____  26.  $\dfrac{3}{8}$  ■  $-\dfrac{11}{17}$
  a.   $-\dfrac{3}{8} = -\dfrac{11}{17}$          c.   $-\dfrac{3}{8} < -\dfrac{11}{17}$
  b.   $-\dfrac{3}{8} > -\dfrac{11}{17}$          d.   cannot be compared

_____ 27. Order $\frac{1}{4}$, $\frac{2}{7}$, and $\frac{5}{6}$ from least to greatest.

    a.   $\frac{2}{7}, \frac{5}{6}, \frac{1}{4}$                         c.   $\frac{1}{4}, \frac{2}{7}, \frac{5}{6}$

    b.   $\frac{5}{6}, \frac{2}{7}, \frac{1}{4}$                         d.   $\frac{1}{4}, \frac{5}{6}, \frac{2}{7}$

_____ 28. The chart shows the weight of a puppy. How much weight did the puppy gain between Week 1 and Week 4?

| Week 1 | Week 2 | Week 3 | Week 4 |
|--------|--------|--------|--------|
| $2\frac{3}{8}$ lb | $2\frac{6}{8}$ lb | 3 lb | $3\frac{2}{8}$ lb |

    a.   $\frac{5}{8}$ lb           b.   $\frac{7}{8}$ lb           c.   $1\frac{7}{8}$ lb           d.   $11\frac{3}{8}$ lb

**Find the product. Simplify if possible.**

_____ 29.   $-\frac{5}{9} \cdot \left( \frac{6}{8} \right)$

    a.   $-\frac{5}{12}$           b.   $\frac{7}{36}$           c.   $\frac{1}{17}$           d.   $\frac{1}{72}$

_____ 30. Which product is *not* equal to –1?

    a.   $-\frac{4}{5} \cdot \frac{85}{68}$     b.   $\frac{3}{27} \cdot \left( -\frac{216}{24} \right)$     c.   $\frac{7}{8} \cdot \left( -\frac{16}{14} \right)$     d.   $-\frac{1}{12} \cdot (-12)$

**Find the quotient. Simplify if possible.**

_____ 31.   $2\frac{2}{3} \div 1\frac{1}{11}$

    a.   $2\frac{10}{11}$           b.   $\frac{11}{32}$           c.   $2\frac{4}{9}$           d.   $\frac{9}{22}$

_____ 32. Sue needs $1\frac{1}{4}$ cups of flour for a batch of cookies. How many batches can she make with 9 cups of flour?

    a.   6 batches      b.   7 batches      c.   4 batches      d.   8 batches

**Solve.**

_____ 33.   $p - \frac{1}{2} = \frac{2}{3}$

    a.   $\frac{3}{5}$           b.   $1\frac{1}{6}$           c.   $\frac{1}{6}$           d.   $\frac{1}{2}$

_____ 34. $p + 7\dfrac{2}{4} = 4\dfrac{1}{2}$

    a. $-2\dfrac{5}{8}$        b. $-3$        c. $-2\dfrac{1}{2}$        d. $11\dfrac{1}{2}$

_____ 35. Write a proportion that can be used to find the cost of 10 notebooks if 3 notebooks cost $1.98.

    a. $\dfrac{3}{10} = \dfrac{n}{\$1.98}$        c. $\dfrac{10}{3} = \dfrac{\$1.98}{n}$

    b. $\dfrac{10}{\$1.98} = \dfrac{n}{3}$        d. $\dfrac{3}{\$1.98} = \dfrac{10}{n}$

_____ 36. At the school store, 6 pencils sell for $.99. At this rate, what is the cost of 16 pencils?
    a. $2.64      b. $3.79      c. $2.98      d. $1.65

_____ 37. The scale on a map is 1 cm : 6 km. If two cities are 13 cm apart on the map, what is the actual distance between the cities?
    a. 13 km      b. 468 km      c. 2.17 km      d. 78 km

_____ 38. What percent of 67 is 33? If necessary, round to the nearest tenth of a percent.
    a. 203.0%      b. 0.5%      c. 49.3%      d. 33.0%

_____ 39. Tamika makes a 5.5% commission selling electronics. How much commission does she make if she sells a flat-screen TV for $10,000?
    a. $9,450      b. $550      c. $55,000      d. $1,818.18

_____ 40. The Party Room at Penny's Pizza rents for an initial fee of $30 and then $5 per hour. Aislyn's bill for her birthday party was $50. For how many hours did she rent the room?
    a. 6 hours      b. 16 hours      c. 4 hours      d. 10 hours

_____ 41. The fare for riding in a taxi is a $3 fixed charge and $0.80 per mile. The fare for a ride of $d$ miles is $6.75. Which equation could be used to find $d$?

    a. $3(6.75 + d) = 3$        c. $3 + 0.80d = 6.75$

    b. $0.80 + 3d = 6.75$        d. $(0.80 + 6.75)d = 3$

_____ 42. Ms. Baker purchased a number of juice packs at a cost of $0.30 each and a loaf of bread that cost $1.19. The total cost of her purchases was $2.99. Which equation can you use to determine how many juice packs Ms. Baker purchased?

    a. $2.99 - 1.19j = 0.30$        c. $1.19j + 0.30j = 2.99$

    b. $0.30j + 2.99 = 1.19$        d. $0.30j + 1.19 = 2.99$

**Solve and graph the inequality.**

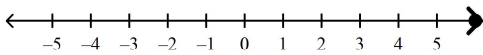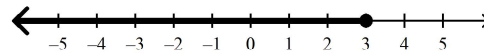____ 43.  $3m + 9 \leq 18$
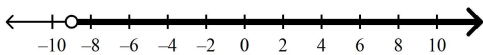  a.  $m \leq 6$
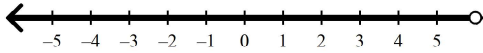


  c.  $m \geq -3$
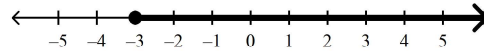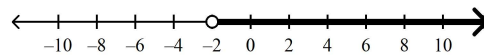


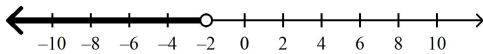  b.  $m \geq 6$



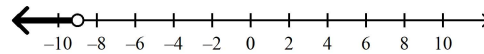  d.  $m \leq 3$



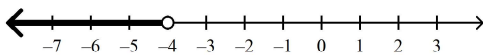____ 44.  $14 - 2x > 18$
  a.  $x > -9$



  c.  $x > -2$



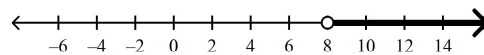  b.  $x < -2$



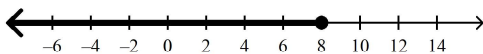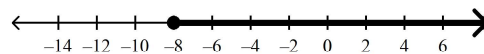  d.  $x < -9$



____ 45.  $-\dfrac{x}{4} - 6 \geq -8$
  a.  $x < -4$
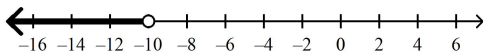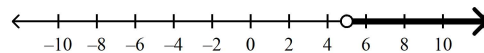


  c.  $x > 8$



  b.  $x \leq 8$



  d.  $x \geq -8$



____ 46.  $\dfrac{4}{5}x + 5 < -3$
  a.  $x < -10$
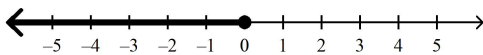


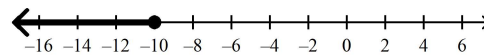  c.  $x > 5$



  b.  $x \leq 0$



  d.  $x \leq -10$



____ 47.  Melissa wants to spend no more than $300 on school clothes. She spends $75 on a coat and then wants to buy some sweaters that are on special for $10 each. Solve the inequality $75 + 10s \leq 300$ to find the greatest number of sweaters $s$ she can buy.
  a.  23 sweaters          b.  22 sweaters          c.  30 sweaters          d.  21 sweaters

_____ 48. Solve the area formula for a triangle, $A = \dfrac{1}{2}bh$, for $h$.

    a. $h = \dfrac{2b}{A}$       b. $h = \dfrac{b}{2A}$       c. $h = \dfrac{2A}{b}$       d. $h = \dfrac{A}{2b}$

_____ 49. Jordan invested $1000 in a savings account. The interest rate is 6% per year. Find the simple interest earned in 4 years. Then find the total of principal plus interest.
    a. $24,000.00; $25,000.00       c. $262.48; $1,262.48
    b. $60.00; $1,060.00       d. $240.00; $1,240.00

_____ 50. The diagram shows a square of side 3 in. containing a circle of diameter 3 in. To the nearest hundredth, what is the area of the shaded part of the figure? Use 3.14 for $\pi$.
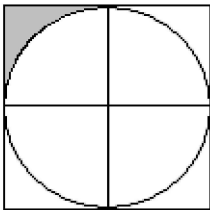


    a. 0.48 in.²       b. 1.93 in.²       c. 4.03 in.²       d. 4.82 in.²

_____ 51. Find the surface area of a rectangular prism that is 16 inches long, 12 inches wide, and 5 inches high.
    a. 960 in.²       b. 689 in.²       c. 714 in.²       d. 664 in.²

_____ 52. Andy is building a model of a square pyramid for a class project. The side length of the square base is 11 inches and the slant height of the pyramid is 15 inches. What is the surface area of the model pyramid?
    a. 451 in.²       b. 203.5 in.²       c. 286 in.²       d. 330 in.²

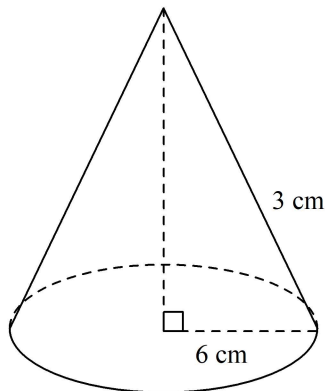_____ 53. Find the surface area of the cone to the nearest square unit. Use $\pi = 3.14$.



3 cm

6 cm

Diagram not to scale.

    a. 283 cm²       b. 170 cm²       c. 141 cm²       d. 226 cm²
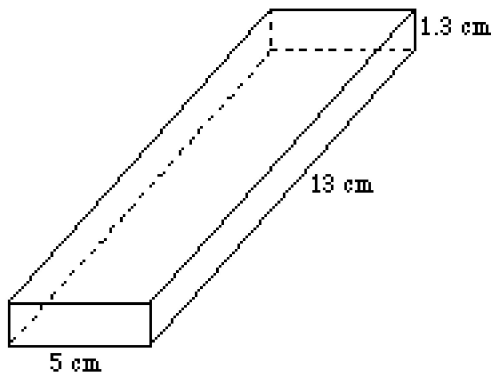
_____ 54. Devin won a tiny bouncy ball at the school carnival. The diameter of the ball is 1.25 inches. To the nearest hundredth of a square inch, what is the surface area of the ball? Use 3.14 for $\pi$.
   a.   19.63 in.²          b.   4.91 in.²          c.   12.27 in.²          d.   9.81 in.²

**Find the volume of the rectangular prism.**
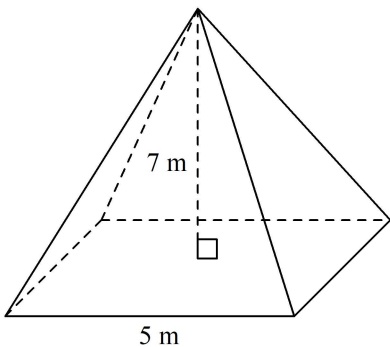
_____ 55.



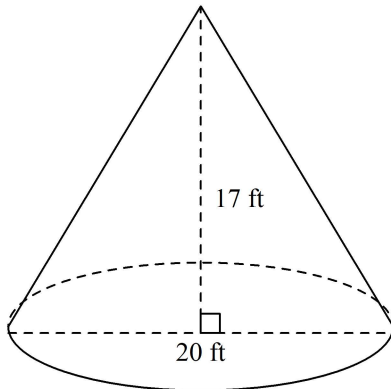   a.   77.2 cm³          b.   81.9 cm³          c.   88.4 cm³          d.   84.5 cm³

**Find the volume of the square pyramid to the nearest cubic unit.**

_____ 56.



   a.   175 m³          b.   233 m³          c.   58 m³          d.   88 m³

_____ 57. The diagram shows the dimensions of a teepee. Find the volume of the building to the nearest cubic unit. Use 3.14 for $\pi$.



a. 1,780 ft³    b. 1,382 ft³    c. 21,363 ft³    d. 5,341 ft³

**Short Answer**

58. Jaime has $\dfrac{5}{11}$ of a project completed while Tim has finished $\dfrac{7}{13}$ of the same project.

   **a.** Who has completed the greater amount of work?
   **b.** How much of the project have they completed together? Show your work.

59. Gina has 40 fl oz of milk left in her refrigerator. A recipe she wants to use for dinner calls for 4 cups of milk. Explain how Gina could use dimensional analysis to determine whether she has enough milk for the recipe.

60. Joan has read $\dfrac{2}{5}$ of her book. Her goal is to have read $\dfrac{2}{3}$ of her book by the end of the weekend. How much more does Joan have to read of her book to meet her goal? Show your work.