

CTB/McGraw-Hill

Grade 7 Benchmark 2 Math

Test ID: 75091

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Test Directions

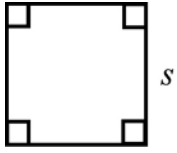
General Offline Instructions:

Today you will take the Acuity test. Read each question carefully and decide which answer is correct. Using your scan sheet, fill in the bubble that contains the letter for the answer you choose.

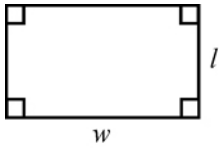
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Reference Sheet

You may use calculator π or the number 3.14

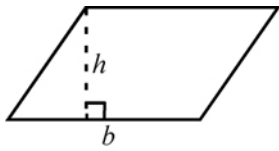


$$A = s \times s$$

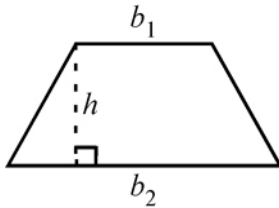


$$P = 2l + 2w$$

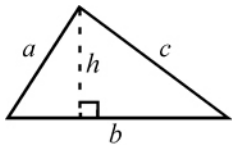
$$A = lw$$



$$A = bh$$

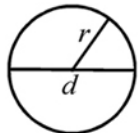


$$A = \frac{1}{2}h(b_1 + b_2)$$



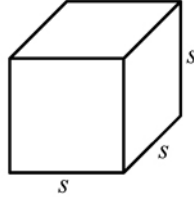
$$P = a + b + c$$

$$A = \frac{1}{2}bh$$



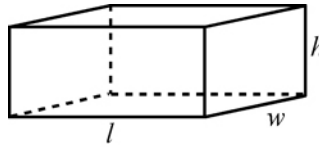
$$C = 2\pi r$$

$$A = \pi r^2$$



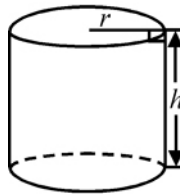
$$SA = 6s^2$$

$$V = s \times s \times s$$

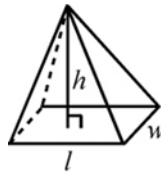


$$SA = 2lw + 2lh + 2wh$$

$$V = lwh$$



$$V = \pi r^2 h$$



$$V = \frac{1}{3}lwh$$

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Customary Conversions:

1 yard (yd) = 3 feet (ft)

1 foot = 12 inches (in.)

1 pound (lb) = 16 ounces (oz.)

1 gallon (gal) = 4 quarts (qt)

1 quart = 2 pints (pt)

1 pint = 2 cups (c)

1 cup = 8 fluid ounces

1 day = 24 hours (hr)

1 hour = 60 minutes (min)

1 minute = 60 seconds (sec)

Metric Conversions:

1 kilometer = 1000 meters

1 hectometer = 100 meters

1 dekameter = 10 meters

1 meter

1 decimeter = 0.1 meter

1 centimeter = 0.01 meter

1 millimeter = 0.001 meter

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1. Look at this expression.

$$4 \times 3 + 6 \div 3 - 1$$

Which of these shows the expression simplified?

- A** 18
- B** 14
- C** 11
- D** 13

2. What is the value of a if $3a = 78$?

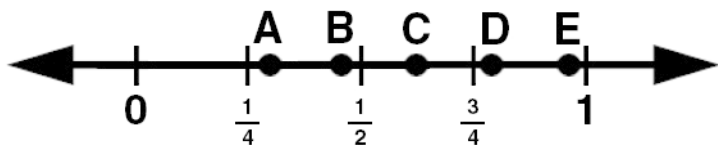
- A** 234
- B** 26
- C** 75
- D** 24

3. Jaime has $\frac{7}{3}$ cups of flour. He uses $\frac{5}{8}$ of it to make pancakes. How many cups of flour did he use in the pancakes?

- A** $\frac{56}{15}$ cups
- B** $\frac{15}{56}$ cup
- C** $\frac{35}{24}$ cups
- D** $\frac{12}{11}$ cups

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4. Look at the number line.



Which point on the number line is at 0.67?

- A Point D
 - B Point C
 - C Point B
 - D Point A
5. Lily made 18 cupcakes for a party. She gave b cupcakes to her brothers. Lily then made 7 more cupcakes. Which expression can be used to describe the total number of cupcakes Lily has for the party?

- A $18 - b + 7$
- B $18 + b - 7$
- C $18 + b + 7$
- D $18 - b - 7$

6. The ratio of the number of students sitting at 7 tables is 35:7. If each table has the same number of students, which ratio shows the number of students at one table?

- A 5:1
- B 4:1
- C 28:1
- D 6:1

7. What is the value of $(x + 5)^2$ when $x = 4$?

- A 18
- B 81
- C 41
- D 29

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8. David has 7.2 meters of rope. He uses 0.4 of the total rope to tie some boxes together. How much rope has David used?

- A 0.288 meters
- B 2.88 meters
- C 28.8 meters
- D 288 meters

9. George can build 1 model airplane in 2 weeks. How many weeks will it take him to build 8 model airplanes?

- A 4
- B 16
- C 9
- D 17

10. Look at this number pattern.

2, 6, 18, 54, ...

What is the next number in this pattern?

- A 90
- B 81
- C 162
- D 80

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11. Look at the proportion.

$$\frac{2}{3} = \frac{a}{24}$$

What is the value of a ?

- A** 16
- B** 2
- C** 36
- D** 23

12. Look at this expression.

$$6a(4b + 3)$$

Evaluate the expression for $a = 2$ and $b = 5$.

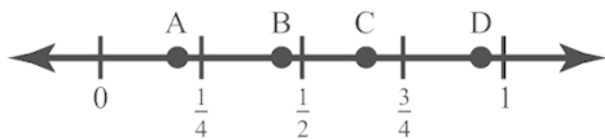
- A** 330
- B** 243
- C** 384
- D** 276

13. Ashley is shopping for granola bars to take to school for a snack. At the supermarket, she finds different prices on granola bars. She can buy 6 bars for \$4.00, 5 bars for \$3.40, 4 bars for \$3.60, or 8 bars for \$5.60. Which is the lowest cost per unit?

- A** 8 bars for \$5.60
- B** 5 bars for \$3.40
- C** 6 bars for \$4.00
- D** 4 bars for \$3.60

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14. Look at this number line.



Which of these is $\frac{2}{9}$ on the number line?

- A A
- B B
- C C
- D D

15. Look at this number pattern.

$$\frac{4}{5}, \frac{16}{20}, \frac{28}{35}, \frac{40}{50}$$

Which of these fractions comes next in the pattern?

- A $\frac{52}{50}$
- B $\frac{52}{65}$
- C $\frac{40}{50}$
- D $\frac{40}{65}$

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16. Evaluate this expression.

$$3 \times (4 + 8) \div 2 \times 4$$

- A** 40
- B** 28
- C** 72
- D** 13

17. Sandra poured 6 ounces of juice into each glass. She poured a total of 78 ounces of juice. Which number sentence can be used to find g , the number of glasses of juice Sandra poured?

- A** $78 - 6 = g$
- B** $6 + g = 78$
- C** $g \div 6 = 78$
- D** $g \times 6 = 78$

18. Look at the proportion.

$$\frac{4}{5} = \frac{a}{40}$$

What is the value of a ?

- A** 50
- B** 39
- C** 4
- D** 32

19. Samuel had \$8.46 and spent \$4.16 at a candy store. He needed the rest of his money to buy snacks at school for 2 days. If Samuel spent the same amount of money each day, how much did he have for snacks on each day?

- A** \$2.30
- B** \$6.30
- C** \$2.15
- D** \$10.62

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20. Look at this equation.

$$t + \frac{2}{8} = \frac{5}{8}$$

What value of t makes this equation true?

A $t = \frac{3}{8}$

B $t = \frac{3}{16}$

C $t = \frac{10}{64}$

D $t = \frac{7}{8}$

21. Laurie jogs 21 meters in 6 seconds. If she maintains the same speed, how many meters will she jog in 4 seconds?

A 84

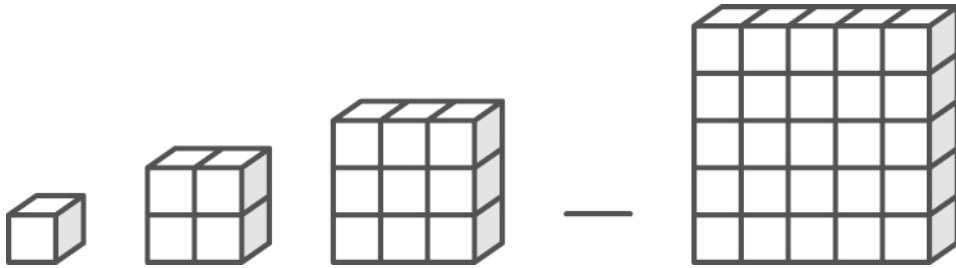
B $\frac{1}{14}$

C 31.5

D 14

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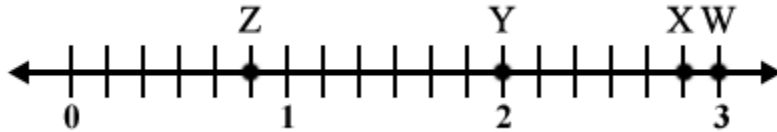
22. Look at this pattern of shapes.



Which number of cubes goes in the blank to complete this pattern?

- A 24
- B 36
- C 16
- D 10

23. Which of these shows $2\frac{5}{6}$ on the number line?



- A Z
- B Y
- C X
- D W

24. Look at this expression.

$$8x + 4$$

What is the value of the expression when $x = 9$?

- A 72
- B 76
- C 12
- D 104

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25. Look at this equation.

$$\frac{4}{8} = \frac{a}{20}$$

Which of these is equal to a ?

A $\frac{1}{40}$ **C** $\frac{9}{20}$

B 10 **D** 8

This is the end of the test.

Grade 7 Benchmark 2 Math

Item#	ResponseA	ResponseB	ResponseC	ResponseD
1	Incorrect Response: adds and subtracts before multiplying	Incorrect Response: computation error, subtracts instead of dividing	Incorrect Response: adds before multiplying	Correct Response: evaluates expression using the proper order of operations
2	Incorrect Response: multiplies the coefficient instead of dividing by it	Correct Response: solves the equation	Incorrect Response: subtracts the coefficient instead of dividing by it	Incorrect Response: makes a division fact error
3	Incorrect Response: multiplies first fraction in sequence by inverse of second fraction in sequence	Incorrect Response: multiplies the inverse of first fraction in sequence by second fraction in sequence	Correct Response: multiplies two fractions correctly	Incorrect Response: adds numerators and denominators
4	Incorrect Response: finds another location on the number line	Correct Response: finds the correct location on the number line	Incorrect Response: finds another location on the number line	Incorrect Response: finds another location on the number line
5	Correct Response: selects the expression that subtracts and then adds	Incorrect Response: reverses the addition and subtraction	Incorrect Response: adds both times	Incorrect Response: subtracts both times
6	Correct Response: divides by the denominator to reduce the ratio	Incorrect Response: division error-ratio too low	Incorrect Response: confuses subtraction with division	Incorrect Response: division error-ratio too large
7	Incorrect Response: multiplies instead of applying exponent	Correct Response: evaluates sum and then applies exponent	Incorrect Response: applies exponent and then evaluates sum	Incorrect Response: applies exponent to only one term within the parentheses
8	Incorrect Response: multiplies correctly but puts the decimal one extra place to the left	Correct Response: multiplies correctly and places the decimal correctly	Incorrect Response: multiplies correctly but puts the decimal one extra place to the right	Incorrect Response: multiplies correctly but ignores the decimals
9	Incorrect Response: uses wrong operation to solve	Correct Response: makes correct use of cross multiplication to find the value of the unknown variable	Incorrect Response: uses wrong operation to solve	Incorrect Response: uses wrong operation to solve
10	Incorrect Response: finds difference between third and fourth term and adds it to fourth term	Incorrect Response: raises common ratio to same power as number of terms, but does not multiply by initial value	Correct Response: finds the common ratio and then multiplies it by the last given term	Incorrect Response: adds all of the previous terms
11	Correct Response: finds missing value using proportions	Incorrect Response: gives the value of the numerator on the left side of the equation	Incorrect Response: student reverses the algorithm for finding proportions	Incorrect Response: compares the difference between the denominator and numerator
12	Incorrect Response: interchanges the values for substitution before evaluating	Incorrect Response: does not add the addend until after multiplying the other four terms	Incorrect Response: adds the last factor to the addend before multiplying	Correct Response: evaluates and simplifies the expression
13	Incorrect Response: selects item that does not have the lowest unit cost	Incorrect Response: selects item that does not have the lowest unit cost	Correct Response: finds lowest unit cost	Incorrect Response: selects item that does not have the lowest unit cost
14	Correct Response: selects correct location on the number line	Incorrect Response: point on number line too high	Incorrect Response: point on number line too low/high	Incorrect Response: point on number line too high
15	Incorrect Response: extends numerator, forgets to extend denominator	Correct Response: selects fraction that extends the pattern	Incorrect Response: selects last fraction shown	Incorrect Response: extends denominator, forgets to extend numerator
16	Incorrect Response: ignores parentheses and evaluates expression from left to right	Incorrect Response: ignores parentheses	Correct Response: correctly evaluates expression using order of operations	Incorrect Response: evaluates multiplication before division and ignores parentheses
17	Incorrect Response: subtracts instead of multiplies	Incorrect Response: adds instead of multiplies	Incorrect Response: divides using product as quotient instead of dividend	Correct Response: chooses the number sentence that matches the problem
18	Incorrect Response: student reverses the algorithm for finding proportions	Incorrect Response: compares the difference between the denominator and numerator	Incorrect Response: gives the value of the numerator on the left side of the equation	Correct Response: finds missing value using proportions
19	Incorrect Response: subtraction instead of division	Incorrect Response: addition instead of division	Correct Response: Represent and model division	Incorrect Response: addition and subtraction instead of subtraction and division

20	Correct Response: solves the equation	Incorrect Response: uses the common denominator	Incorrect Response: uses multiplication rather than subtraction	Incorrect Response: uses addition rather than subtraction
21	Incorrect Response: confuses initial quantity with rate	Incorrect Response: sets up a correct proportion but does not isolate the unknown amount correctly	Incorrect Response: sets up incorrect proportion	Correct Response: uses proportional reasoning to solve problem
22	Incorrect Response: chooses the number that precedes the number following the box	Incorrect Response: chooses the number after the last given term	Correct Response: completes the pattern	Incorrect Response: choose the number following the term before the box
23	Incorrect Response: identifies fractional portion of the number	Incorrect Response: identifies whole number portion of the mixed number	Correct Response: identifies the position of a mixed number on a number line	Incorrect Response: rounds mixed number to the nearest whole number
24	Incorrect Response: does not add	Correct Response: correct substitution of the whole number	Incorrect Response: ignores the variable	Incorrect Response: reverses the order of operations
25	Incorrect Response: divides both sides by the reciprocal of the coefficient of the variable	Correct Response: divides both sides by the coefficient of the variable	Incorrect Response: subtracts both sides by a unit fraction with the same denominator as the term with the variable	Incorrect Response: wrong division fact