

# Placement Test for Rod and Staff *Mathematics for Christian Living Series*

(version: 2021-04)

## Directions:

The student should begin the test a grade or two below their expected grade, just to ensure they have indeed mastered previous concepts. There are 15 questions per grade, and the student may continue through the grades of the test as far as they seem confident.

If they have gotten at least 80% (12 of 15 questions) correct in a particular grade, consider them as having mastered that grade level and are ready for the next. Each grade course will include some review, so it's not necessary to show mastery in every area. The "objectives" (stated in square brackets for each question) list the skills that are being tested at each grade level. These will also help you locate areas of student weakness.

The answer key is available by email request. Let us know if you have any feedback about using this test.

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# Grade 1

## 1. [Can count objects]

Count the number of objects:



- A. 8
- B. 9
- C. 7
- D. 6

## 2. [Can identify up to three-digit numbers]

Which number is one hundred eighteen?

- A. 180
- B. 81
- C. 118
- D. 108

## 3. [Can add one-digit numbers]

$$3 + 5 =$$

- A. 4
- B. 8
- C. 9
- D. 3

## 4. [Can add one-digit number with two-digit number]

$$13 + 6 =$$

- A. 16
- B. 73
- C. 7
- D. 19

## 5. [Can add two-digit numbers]

$$24 + 33 =$$

- A. 27
- B. 65
- C. 57
- D. 67

**6. [Can subtract one-digit numbers]**

$5 - 2 =$

- A. 3
- B. 7
- C. 4
- D. 9

**7. [Can subtract one-digit number from ten]**

$10 - 6 =$

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

**8. [Can identify simple fractions]**

Which fraction is one half?

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

**9. [Can identify place values to the hundreds' place]**

Which number in 472 is in the hundreds' place?

- A. 1
- B. 4
- C. 7
- D. 2

**10. [Can perform mixed computation of addition and subtraction]**

$3 + 5 - 2 =$

- A. 8
- B. 6
- C. 10
- D. 4

**11. [Can compare simple measures]**

How many inches are in a foot?

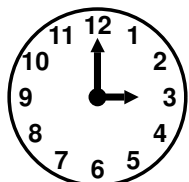
- A. 12
- B. 5
- C. 10
- D. 17

**12. [Can identify simple shapes]**

Which one of these is a triangle?

**13. [Can tell time to the hour and half-hour]**

What time does the clock show?



A. 3:12

B. 3:00

C. 12:03

D. 12:15

**14. [Can solve simple story problems]**

If Tom had 11 apples and gave 4 to his sister, Jill, how many apples does he have now?

A. 8

B. 15

C. 13

D. 7

**15. [Can skip count]**

What are the first three numbers when counting by twos?

A. 1, 2, 3

B. 2, 3, 4

C. 2, 4, 6

D. 1, 3, 5

## Grade 2

### 1. [Can add two and three-digit numbers]

$$53 + 108 =$$

- A. 165
- B. 151
- C. 155
- D. 161

### 2. [Can add multiple two-digit numbers]

$$25 + 12 + 81 =$$

- A. 118
- B. 107
- C. 74
- D. 138

### 3. [Can add three-digit numbers]

$$452 + 226 =$$

- A. 588
- B. 494
- C. 678
- D. 774

### 4. [Can subtract two-digit numbers from three-digit numbers]

$$796 - 92 =$$

- A. 692
- B. 704
- C. 888
- D. 694

### 5. [Can subtract three-digit number from three-digit numbers]

$$489 - 224 =$$

- A. 163
- B. 265
- C. 275
- D. 244

**6. [Can count by fives]**

What are the first three numbers in counting by 5s?

- A. 1, 5, 10
- B. 3, 4, 5
- C. 5, 6, 7
- D. 5, 10, 15

**7. [Can add coin values]**

Jacob has 3 nickels, 2 pennies, and 1 dime. How many cents does he have altogether?

- A. 27
- B. 22
- C. 6
- D. 37

**8. [Can compare minutes and hours]**

How many minutes are in an hour?

- A. 10
- B. 12
- C. 25
- D. 60

**9. [Can compare ounces and pounds]**

How many ounces are in a pound?

- A. 10
- B. 12
- C. 16
- D. 60

**10. [Can convert cents and dollars]**

What is 189 cents in dollars?

- A. \$18,900
- B. \$1.89
- C. \$0.189
- D. \$189

**11. [Can carry once in an addition process]**

$54 + 47 =$

- A. 91
- B. 101
- C. 83
- D. 113

**12. [Can carry twice in an addition process]**

$167 + 263 =$

- A. 320
- B. 430
- C. 1,310
- D. 330

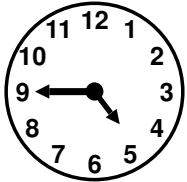
**13. [Can borrow once in a subtraction process]**

$62 - 47 =$

- A. 15
- B. 17
- C. 5
- D. 25

**14. [Can tell time to the quarter hours]**

What time does the clock show?



- A. 5:45
- B. 5:09
- C. 9:05
- D. 4:45

**15. [Can solve word problems involving 2nd-grade arithmetic]**

Alfred had 84 cents, then he spent 37 cents on a carrot. How many cents does he have left?

- A. 57
- B. 47
- C. 53
- D. 41

## Grade 3

1. [Can perform mixed computation of addition and subtraction with two-digits numbers]

$$22 - 18 + 37 =$$

- A. 53
- B. 49
- C. 41
- D. 31

2. [Can borrow twice in a subtraction process]

$$263 - 88 =$$

- A. 285
- B. 181
- C. 113
- D. 175

3. [Can multiply lower one-digit numbers]

$$3 \times 4 =$$

- A. 1
- B. 7
- C. 9
- D. 12

4. [Can multiply upper one-digit numbers]

$$6 \times 8 =$$

- A. 24
- B. 48
- C. 14
- D. 45

5. [Can divide lower one-digit divisors]

$$8 \div 2 =$$

- A. 2
- B. 6
- C. 4
- D. 3



**6. [Can divide with higher one-digit divisors]**

$54 \div 9 =$

- A. 12
- B. 8
- C. 6
- D. 5

**7. [Can divide and answer with a simple fraction]**

$3 \div 6 =$

- A.  $\frac{1}{2}$
- B.  $\frac{1}{6}$
- C. 2
- D.  $\frac{1}{3}$

**8. [Can perform mixed computation involving multiplication and addition]**

$3 \times 9 + 1 =$

- A. 22
- B. 28
- C. 30
- D. 25

**9. [Can multiply with a two-digit multiplicand]**

$48 \times 6 =$

- A. 288
- B. 182
- C. 162
- D. 248

**10. [Can multiply with a three-digit multiplicand]**

$912 \times 4 =$

- A. 1,498
- B. 3,648
- C. 2,958
- D. 2,848

**11. [Can divide two-digit dividends, outside times tables]**

$84 \div 6 =$

- A. 8
- B. 9
- C. 12
- D. 14

**12. [Can use proper dollar notation]**

How many dollars is 264 cents?

- A. \$264.00
- B. \$26.40
- C. \$3.00
- D. \$2.64

**13. [Can divide involving three-digit dividend with two-digit quotient]**

$504 \div 8 =$

- A. 54
- B. 88
- C. 63
- D. 27

**14. [Can divide involving three-digit dividend and three-digit quotient]**

$695 \div 5 =$

- A. 119
- B. 139
- C. 123
- D. 103

**15. [Can add dollar amounts]**

$\$2.14 + \$1.57 =$

- A. \$3.71
- B. \$4.61
- C. \$20.61
- D. \$21.71

## Grade 4

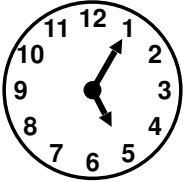
### 1. [Can read and write up to nine-digit numbers]

What number is eight million, sixty-five thousand, seven?

- A. 8,657
- B. 8,065,007
- C. 1,800,065,007
- D. 8,000,657

### 2. [Can tell time by five-minute intervals]

What time does the clock show?



- A. 5:05
- B. 1:05
- C. 5:01
- D. 1:25

### 3. [Can read Roman numerals involving characters I–C]

What is the value of the Roman numeral CXXXIV?

- A. 134
- B. 86
- C. 136
- D. 84

### 4. [Can convert metric measurements]

How many meters are in 5 kilometers?

- A. 15
- B. 500
- C. 1,000
- D. 5,000

### 5. [Can subtract from zero in three- and four-digit numbers]

$600 - 346 =$

- A. 264
- B. 356
- C. 254
- D. 266

**6. [Can divide, resulting in a remainder]**

$$34 \div 6 =$$

- A. 5
- B. 5 R 6
- C. 6
- D. 5 R 4

**7. [Can add four-digit numbers, resulting in a five-digit sum]**

$$1,982 + 3,092 + 5,863 =$$

- A. 9,837
- B. 10,937
- C. 9,747
- D. 11,147

**8. [Can reduce simple fraction to lowest terms]**

What is  $\frac{8}{16}$  in lowest terms?

- A.  $\frac{2}{4}$
- B.  $\frac{1}{16}$
- C.  $\frac{1}{2}$
- D.  $\frac{0}{8}$

**9. [Can solve two-step story problems]**

Ben spent \$12.85 for a dictionary and \$0.69 for a bookmark. What was his change from \$20.00?

- A. \$6.46
- B. \$7.46
- C. \$7.56
- D. \$8.66

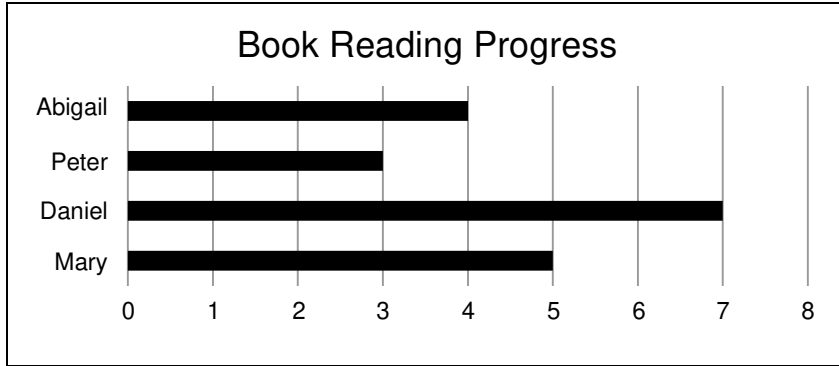
**10. [Can determine factors of a number]**

Which number is a factor of 12?

- A. 8
- B. 11
- C. 4
- D. 5

**11. [Can read and understand a bar graph]**

According to the graph, how many more books did Daniel read than Abigail?



- A. 1
- B. 4
- C. 7
- D. 3

**12. [Can add fractions with different denominators]**

$$\frac{2}{3} + \frac{5}{12} =$$

- A.  $\frac{7}{12}$
- B.  $1\frac{3}{12}$
- C.  $\frac{7}{15}$
- D.  $1\frac{1}{12}$

**13. [Can divide four-digit dividend]**

$$5,130 \div 6 =$$

- A. 855
- B. 848 R 5
- C. 954 R 2
- D. 866

**14. [Can find average]**

What is the average of 16, 12, 20, 24, and 18?

- A. 18
- B. 12
- C. 24
- D. 17

**15. [Can multiply four-digit multiplicand]**

$$2,450 \times 7 =$$

- A. 16,850
- B. 16,100
- C. 14,835
- D. 17,150

## Grade 5

### 1. [Can convert units of time]

How many minutes are in 7 hours?

- A. 350 minutes
- B. 420 minutes
- C. 700 minutes
- D. 540 minutes

### 2. [Can convert units after addition and subtraction]

What is 4 gal. and 3 qt. plus 6 gal. and 2 qt. plus 3 gal. and 3 qt.?

- A. 14 gallons and 2 quarts
- B. 14 gallons and 3 quarts
- C. 15 gallons
- D. 14 gallons

### 3. [Can determine greatest common factor of a number]

What is the greatest common factor of 12 and 32?

- A. 2
- B. 4
- C. 12
- D. 64

### 4. [Can recognize prime numbers]

Which number is a prime number?

- A. 6
- B. 13
- C. 9
- D. 4

### 5. [Can multiply three-digit multiplicand and multiplier]

$786 \times 213 =$

- A. 167,218
- B. 4,716
- C. 147,218
- D. 167,418

**6. [Can recognize decimal place values to the thousandths' place]**

Which number in 4.837 is in the hundredths' place?

- A. 4
- B. 8
- C. 3
- D. 7

**7. [Can add decimals]**

$$6.37 + 3.045 + 0.802 =$$

- A. 9.884
- B. 10.217
- C. 10.184
- D. 9.1217

**8. [Can multiply decimals]**

$$6.490 \times 58 =$$

- A. 376.42
- B. 84.37
- C. 352.72
- D. 78.67

**9. [Can convert fractions to percents]**

The fraction  $\frac{3}{20}$  is equal to what percent?

- A. 3%
- B. 20%
- C. 15%
- D. 33%

**10. [Can multiply mixed, whole, and fractional numbers]**

$$\frac{2}{3} \times 4 =$$

- A.  $\frac{8}{12}$
- B.  $\frac{8}{3}$
- C.  $\frac{8}{7}$
- D.  $\frac{6}{3}$



**11. [Can divide with fractions]**

$$\frac{2}{5} \div \frac{2}{3} =$$

- A.  $\frac{3}{5}$
- B.  $\frac{1}{2}$
- C.  $\frac{1}{5}$
- D.  $\frac{5}{7}$

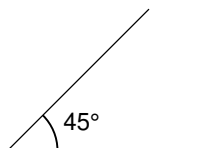
**12. [Can recognize key temperature points]**

What is the freezing point of water on the Fahrenheit scale?

- A. 100°F
- B. 0°F
- C. -40°F
- D. 32°F

**13. [Can recognize angle types]**

What type of angle is this?



- A. Right
- B. Acute
- C. Obtuse
- D. Straight

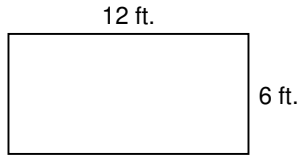
**14. [Can recognize congruency of shapes]**

Which pair of shapes are congruent?

- A. A large solid black circle and a smaller solid black circle.
- B. A solid black triangle and a solid black oval.
- C. Two identical solid black squares.
- D. Two identical solid black pentagons.

**15. [Can determine perimeter of a rectangle]**

What is the perimeter of the rectangle?



- A. 36 ft.
- B. 24 ft.
- C. 18 ft.
- D. 2 ft.

## Grade 6

### 1. [Can solve problems with the relationship of distance, rate, and time]

If Henry travels 442 miles at 52 m.p.h., how long will it take him to reach his destination?

- A. 9.1 hours
- B. 8.5 hours
- C. 7 hours
- D. 6.6 hours

### 2. [Can determine prime factors]

What are the prime factors of 84?

- A. 2, 2, 2, 3, 3
- B. 2, 2, 2, 5
- C. 2, 2, 3, 7
- D. 3, 7, 11

### 3. [Can find least common multiples]

What is the least common multiple of 16 and 36?

- A. 36
- B. 144
- C. 178
- D. 84

### 4. [Can divide fractions and mixed numbers]

$$3\frac{3}{8} \div 2\frac{7}{10} =$$

- A.  $1\frac{1}{9}$
- B.  $6\frac{21}{80}$
- C.  $9\frac{1}{9}$
- D.  $1\frac{1}{4}$

### 5. [Can read Roman numerals involving characters I–M]

What number is MCXLVII?

- A. 1,642
- B. 967
- C. 1,147
- D. 647

**6. [Can round decimals to the thousandths' place]**

What is 12.905786 rounded to the nearest thousandth?

- A. 12.9057
- B. 12.905
- C. 12.906
- D. 12.9058

**7. [Can convert metric units of capacity]**

How many centiliters are in 13 hectoliters?

- A. 1,300
- B. 130
- C. 130,000
- D. 13,000

**8. [Can convert between English and metric units]**

How many pounds are in a kilogram?

- A. 2.2
- B. 1.15
- C. 0.87
- D. 5.0

**9. [Can calculate the percentage of a number]**

56% of 125 =

- A. 108
- B. 137.5
- C. 56
- D. 70

**10. [Can calculate a number as a percentage of another]**

18 is what percent of 30?

- A. 6%
- B. 16.6%
- C. 54%
- D. 60%

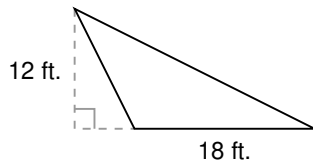
**11. [Can calculate profit]**

If James buys a book for \$4.67, sells it for \$9.95, and pays a shipping cost of \$1.37, how much is his profit?

- A. \$5.28
- B. \$9.95
- C. \$3.91
- D. \$4.08

**12. [Can calculate the area of a triangle]**

What is the area of the triangle?



- A.  $108 \text{ ft.}^2$
- B.  $216 \text{ ft.}^2$
- C. 30 ft.
- D. 60 ft.

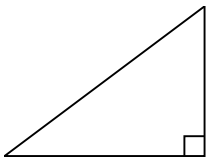
**13. [Can calculate the circumference of a circle]**

What is the circumference of a circle with a radius of 2.5 inches, to the nearest tenth?

- A. 7.9 inches
- B. 15.7 inches
- C. 19.6 inches
- D. 12.5 inches

**14. [Can differentiate between different types of triangles]**

What type of triangle is this?

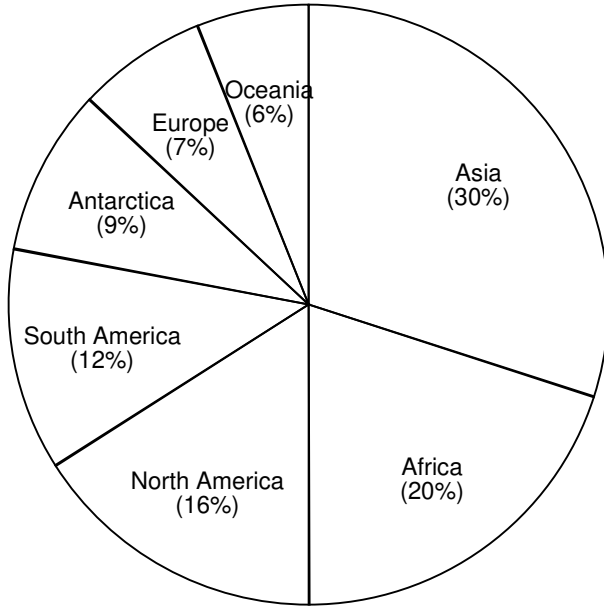


- A. Obtuse
- B. Right
- C. Equilateral
- D. Acute

**15. [Can use a circle graph]**

According to the graph, which three continents combined make up less than one-quarter of the land area of the earth?

Land Area of the Continents



- A. Antarctica, South America, Africa
- B. South America, Oceania, Asia
- C. Africa, Antarctica, Europe
- D. Europe, Oceania, Antarctica

## Grade 7

### 1. [Can calculate with percents greater than one hundred]

165% of 80 =

- A. 132
- B. 197
- C. 157
- D. 52

### 2. [Can calculate commissions of sales]

Phillip receives a 15% commission on everything he sells at work. One day, he sold a lawn mower for \$53 and a set of flower boxes for \$15. How much did Phillip make in commissions for those two items?

- A. \$9.20
- B. \$17.87
- C. \$10.20
- D. \$21.87

### 3. [Can calculate unit prices]

If an 8 ounce block of cheese costs \$3.36, how much does the cheese cost per ounce?

- A. \$1.09
- B. \$0.42
- C. \$0.67
- D. \$0.27

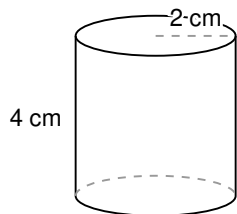
### 4. [Can solve reading problems with extra information]

On one round trip to Central America, the beginning odometer reading on the vehicle was 72,121 miles. The oil was changed at 75,124 miles, and at the end of the trip the odometer showed 79,115 miles. At 11 miles per gallon, how many gallons of fuel did the vehicle use on the trip?

- A.  $362\frac{9}{11}$
- B. 273
- C. 497
- D.  $635\frac{9}{11}$

**5. [Can calculate the volume of a cylinder]**

What is the volume of the cylinder to the nearest tenth of a cubic centimeter?



- A.  $16.0 \text{ cm}^2$
- B.  $25.1 \text{ cm}^2$
- C.  $37.7 \text{ cm}^3$
- D.  $50.3 \text{ cm}^3$

**6. [Can convert between Celsius and Fahrenheit temperature scales]**

What is  $68^\circ\text{F}$  in Celsius to the nearest degree?

- A.  $38^\circ\text{C}$
- B.  $8^\circ\text{C}$
- C.  $20^\circ\text{C}$
- D.  $45^\circ\text{C}$

**7. [Can convert between fractions and non-terminating decimals]**

What is  $0.\overline{1}$  in fractional form?

- A.  $\frac{4}{29}$
- B.  $\frac{1}{9}$
- C.  $\frac{3}{22}$
- D.  $\frac{1}{11}$

**8. [Can solve problems using order of operation rules]**

$$(6 - 3)8 - 4 =$$

- A. 20
- B. 12
- C. -6
- D. 7

**9. [Can multiply compound measures]**

What is 7 times 5 ft. 9 in.?

- A. 40 ft. 3 in.
- B. 44 ft. 7 in.
- C. 41 ft. 3 in.
- D. 38 ft. 9 in.



**10. [Can calculate small numbers with exponents]**

$$6^2 =$$

- A. 8
- B. 12
- C. 36
- D. 54

**11. [Can calculate square roots]**

$$\sqrt{64} =$$

- A. 16
- B. 8
- C. 4
- D. 32

**12. [Can properly use signed numbers in addition and subtraction]**

$$(-9) + 7 - (-3) =$$

- A. 16
- B. 19
- C. -5
- D. 1

**13. [Can properly use signed numbers in multiplication and division]**

$$\frac{6 \cdot (-4)}{-3} =$$

- A. 8
- B.  $\frac{2}{-3}$
- C.  $\frac{10}{3}$
- D. -8

**14. [Can calculate simple algebraic expressions by substitution of numerical values]**

If  $a = 2$ ,  $b = 3$ , and  $c = 4$ , then:  $ab + c =$

- A. 10
- B. 24
- C. 9
- D. 15

**15. [Can calculate simple algebraic expressions by solving for an unknown]**

If  $x - 12 = 24$ , then:  $x =$

- A. 16
- B. 36
- C. 40
- D. 12

## Grade 8

### 1. [Can perform advanced arithmetic according to order of operations]

$$2[3 + 3(12 - 3^2)] =$$

- A. 33
- B. 42
- C. 24
- D. 36

### 2. [Can solve problems involving proportions]

Find the value of  $n$  in this equation:  $\frac{3}{2} = \frac{n}{120}$

- A. 130
- B. 180
- C. 160
- D. 80

### 3. [Can determine a median]

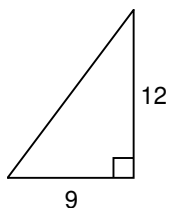
Find the median of these numbers:

1, 1, 1, 2, 5, 5, 6, 7, 8

- A. 6.3
- B. 4
- C. 5
- D. 1

### 4. [Can solve problems using the Pythagorean rule]

What is the length of the triangle's hypotenuse? Use Pythagorean rule to solve.



- A. 15
- B. 18.5
- C. 21
- D. 14.2

### 5. [Can multiply and divide numbers with exponents]

$$4^6 \div 4^2 =$$

- A. 3
- B.  $4^3$
- C.  $4^4$
- D. 12

**6. [Can add and subtract monomials]**

$$2x - 4x + 6x =$$

- A.  $4 - 4x$
- B.  $8x + 1$
- C.  $12x$
- D.  $4x$

**7. [Can calculate decrease in reading problems]**

At a produce market, apples originally cost \$1.70 per pound. The apples are now discounted by 20%. With the discount, how much do 5 pounds of apples cost, to the nearest cent?

- A. \$6.80
- B. \$3.47
- C. \$1.70
- D. \$7.33

**8. [Can simplify literal numbers with exponents]**

In simplified form,  $\frac{x^9}{x^3} \cdot x =$

- A.  $x^4$
- B.  $x^7$
- C.  $x^3$
- D.  $x^6$

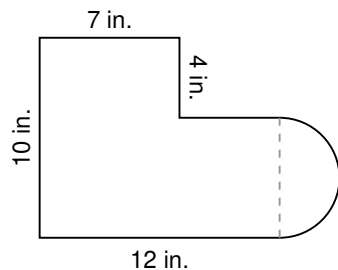
**9. [Can simplify polynomials]**

$$5s - 4t - 2s + 3t + 6 =$$

- A.  $2st + 6$
- B.  $3s - t + 6$
- C.  $8st$
- D.  $3s(-t)6$

**10. [Can calculate the area of compound figures]**

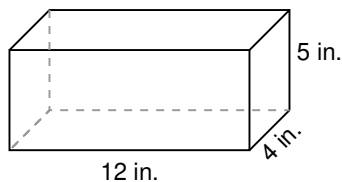
What is the area of this shape? (excluding any shaded portion)



- A.  $97.3 \text{ in.}^2$
- B.  $213.1 \text{ in.}^2$
- C.  $114.1 \text{ in.}^2$
- D.  $128.3 \text{ in.}^2$

**11. [Can calculate the surface area of a rectangular solid]**

What is the surface area of the rectangular solid?



- A.  $128 \text{ in.}^2$
- B.  $240 \text{ in.}^2$
- C.  $236 \text{ in.}^2$
- D.  $256 \text{ in.}^2$

**12. [Can calculate simple interest]**

What is the simple interest on \$525 at 4% for 5 years?

- A. \$105.00
- B. \$4.20
- C. \$262.50
- D. \$73.20

**13. [Can extract square roots from five-digit numbers]**

What is the square root of 17,424?

- A. 418
- B. 132
- C. 268
- D. 148

**14. [Can solve reading problems that present word equations]**

Marlene is three times older than Darren. The sum of their ages is 36. How old is Darren?

- A. 27
- B. 5
- C. 9
- D. 12

**15. [Can recognize regularity of polygons]**

Which shape is an irregular heptagon?

