

Summer Work for Quantitative Reasoning 2019

Student Name \_\_\_\_\_

Date \_\_\_\_\_

Evaluate each expression.

1.  $5 - 3 + 2$
2.  $18 \div 2 \times 3$
3.  $4^2$
4.  $-4^2$
5.  $(-4)^2$
6.  $15 + 2(-8)$
7.  $2[3(4 + 5) - 8]$
8.  $5(8 - 4)^3$

Write each fraction in lowest terms.

9.  $\frac{18}{36}$
10.  $-\frac{60}{90}$
11.  $\frac{56}{24}$

Complete the table.

	Fraction Form	Decimal Form	Percent
12.	$\frac{5}{8}$		
13.		0.028	
14.			0.8%

Evaluate each expression. Write any fractions in lowest terms.

15.  $\frac{2 \cdot 5^2 - 12}{7(2-4)}$
16.  $\frac{-24 + 12 - 16 + 4}{-8(5-7) + (-2)^4}$
17.  $-4.9 + (-8.2)$
18.  $\frac{21}{4} \cdot \frac{7}{3}$
19.  $-15 \div \frac{3}{5}$
20.  $\frac{3}{7} + \frac{4}{9}$
21.  $10 - \frac{5}{7}$
22.  $\left(\frac{3}{4}\right)^4$

Complete the table. Round to the indicated place value.

		To the nearest whole number	To the nearest hundredth
23.	48.1289		
24.	575.5007		
25.	0.875		

Simplify each square root. Round answers to the nearest tenth, if necessary.

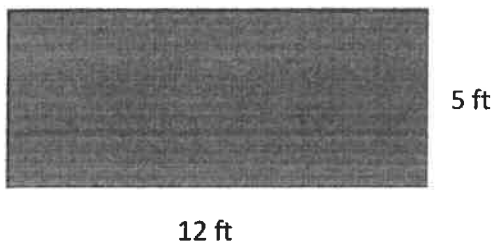
26.  $\sqrt{100}$

27.  $\sqrt{10}$

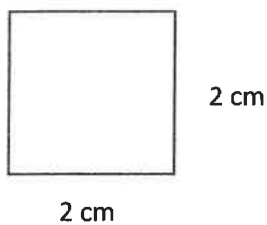
28.  $\sqrt{\frac{25}{36}}$

Find the area and perimeter of each of the following figures.

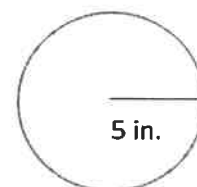
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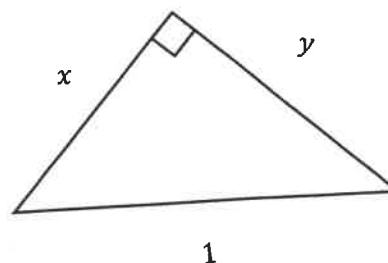
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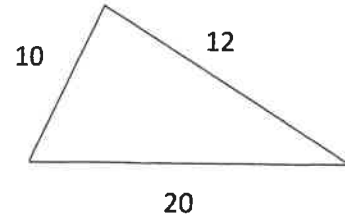
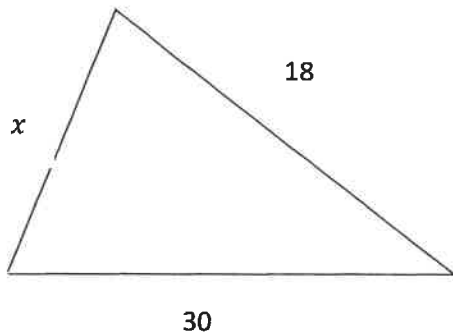
31. Find the area and circumference of the circle. Use 3.14 for the approximation of  $\pi$ .



32. Identify the hypotenuse in the given right triangle.



33. Identify the corresponding side lengths for the given similar triangles.



34. Solve for the unknown side in problem #33.
35. Evaluate  $\frac{y_2 - y_1}{x_2 - x_1}$  given  $x_1 = -5$ ,  $x_2 = 5$ ,  $y_1 = 3$  and  $y_2 = 8$ .
36. Find the simple interest using  $I = Prt$  and given  $P = \$1000$ ,  $r = 2.5\%$ ,  $t = 3$  years. Round the answer to the nearest hundredth.
37. Solve for  $x$ : 
$$\frac{x}{12} = \frac{80}{11}$$

Evaluate each formula for the given values. Include appropriate units in your final answer:

38. Perimeter of a rectangle (  $P = 2L + 2W$  )

$$L = 400 \text{ ft. } W = 225 \text{ ft}$$

39. Area of a Triangle (  $A = \frac{1}{2} B H$  )

$$\text{Base} = 20 \text{ cm } \text{Height} = 9 \text{ cm}$$

40. Area of a Circle (  $A = \pi r^2$  )

$$D = 14 \text{ inches}$$

Find the value of each expression for the give "x" value. Show substitution on paper:

Expression:	Value	Value
41. $4x - 6$	$X = 5$	$X = -4$
42. $x^2 + 6x - 4$	$X = 2$	$X = -2$

Solve for x:

43.  $4x + 6 = 7x - 9$

44.  $5(x + 3) = 15$

Solve for y:

45.  $2x + y = 8$

46.  $2x - 6y = 20$

47. You have \$2000 a month for your expenses. Your car payment is \$225/month. What fractional part is this of your income? Write solution in

a) Fraction

b) Decimal

c) %

48. Enter into your calculator and simplify:

$$10,000 \left(1 + \frac{.07}{4}\right)^{4 \cdot 15}$$

Fill in the table of coordinates and graph:

49.  $y = 2x - 4$

x	y
0	
	0
2	

50.  $2x - 6y = 12$  rectangle

x	y
0	
	0
2	

## EXERCISE 1

1. List five consecutive negative even integers.
2. List five consecutive integers, one of which is 0.
3. List all the prime numbers less than 30.
4. What is the least integer greater than  $-5.8$ ?
5. What is the greatest integer less than  $-3.6$ ?
6. What is a 3-digit number whose digits add up to 14?
7. Without performing division, what is the remainder when:  
(a) 99 is divided by 5?  
(b) 12,345,671 is divided by 10?
8. A multiple of both 3 and 7 is also a multiple of what number?
9. Is the product of 34,569 and 227 odd or even?
10. Is 5223 divisible by (a) 3? (b) 2? (c) 5? (d) 10?
11. If 2 even numbers are multiplied together and then the product is multiplied by 37, will the result be even or odd?
12. Express 56 as the product of prime numbers.
13. If  $-3$  is multiplied by  $-345$ , is the result positive or negative? odd or even?
14.  $2(4 + 10) - 6 \div 3 =$
15.  $5[3(2 - 4)] \div 15 - 2 =$
16. Use the distributive law to rewrite  $3(x + 2y) - 5x(y - 4)$ .
17. Factor the expression  $4xyz - 12xy + 2yz$ .

## EXERCISE 2

- Reduce each of the following fractions:  
(a)  $\frac{5}{20}$  (c)  $\frac{51}{39}$  (e)  $\frac{78}{48}$   
(b)  $\frac{18}{24}$  (d)  $\frac{45}{56}$  (f)  $\frac{12}{63}$
- Perform the following operations:  
(a)  $\frac{5}{6} + \frac{9}{10}$  (c)  $\frac{6}{25} \div \frac{15}{2}$  (e)  $\frac{15}{32} - \frac{7}{8}$   
(b)  $(\frac{2}{3})/6$  (d)  $5 + \frac{5}{6}$  (f)  $(\frac{3}{10})/(\frac{2}{15})$
- Determine the larger fraction in each pair of the following fractions:  
(a)  $\frac{28}{53}, \frac{27}{53}$  (b)  $\frac{14}{21}, \frac{14}{22}$  (c)  $\frac{7}{5}, \frac{11}{12}$
- Convert the mixed number  $5\frac{4}{7}$  to a fraction.
- Convert the fraction  $\frac{25}{7}$  to a mixed number.
- How many halves are in the number 6? How many thirds?

## EXERCISE 3

- Add 101.054 to 5.12.
- Subtract 10.31 from 125.823.
- Multiply 22.65 by 0.5.
- Divide 22.65 by 0.5.
- Reduce  $5.76/3$ .
- Add four one-thousandths and three tenths.
- Which is larger, .002 or .0015?
- Convert  $\frac{13}{2}$  to a decimal.
- Convert .125 to a fraction.
- Approximate  $2.00465/3.98136$  without using your pencil.

### EXERCISE 4

1. What is 40% of 350?
2. 2 is what percent of 16?
3. 2.2 is 20% of what number?
4. 10% of 24 equals 20% of what number?
5. 20% of 25% of  $x$  is 10. What is  $x$ ?
6. The following chart illustrates fraction, decimal, and percent equivalents. Fill in the blanks.

Fraction	Decimal	Percent	Ratio
$\frac{1}{2}$	0.5	50%	1 : 2
$\frac{1}{3}$			2 : 3
		25%	
	0.75		
$\frac{1}{5}$		40%	
	0.6		
$\frac{4}{5}$			1 : 6
		12.5%	

7. What is the average of the numbers 24, 24, 26, 28, and 40?
8. If the average of 5 numbers is 20, what is their total?
9. If the average of 5 numbers is 20, what is the largest that any of the numbers could be?
10. If the average of 11, 17, 15, 28, and  $x$  is 19.6, what is the value of  $x$ ?
11. Jim's average score on 4 math tests was 80 out of a possible 100. If his scores on 2 of the tests were 65 and 70, what is the lowest that either of his other scores could have been?