Math
Algebra

Algebra Action! ANSWER SHEET

Value of The Expression

A variable represents the unknown number in the expression or equation.
For example, 4 x *t* = 12. The letter " *t* " represents the number which multiplies by 4 to equal 12.

An expression in math is a sentence containing numbers and the operations. Below are examples of expressions:

2+ 3	17 - 16 + 2	$\frac{2}{5}x$
6	(3 x 5) - (6 x 2)	*y* - 20

We can find the value of the expression *7 + y* by placing the variable with the number.
For example: if *y* = 5

1. Put 5 in the place of *y* — *7 + y* → *7 + 5*
2. Calculate it — *7 + 5 = 12*

Find the value of the expressions below. Show your work.

17 - h

If h = 4

17 - h
17 - 4 = 13

4 + y + 7

If y = 8

4 + y + 7
4 + 8 + 7 = 19

(12 - b) + 5

If b = 3

(12 - b) + 5
(12 - 3) + 5 = 14

(5 x m) + 1

If m = 6

(5 x m) + 1
(5 x 6) + 1 = 31

(4 x p) x 2

If p = 10

(4 x p) x 2
(4 x 10) x 2 = 80

20 + (6 x w)

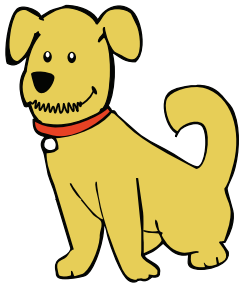
If w = 3

20 + (6 x w)
20 + (6 x 3) = 38

It All Adds Up!

Let's put all your consumer math skills to the test!

Each month, Susie stocks up on pet supplies for her dog, Barksalot. See if you can calculate Susie's monthly expenses for June, July, August, and September. Keep your work organized in the space below each problem.



1. In June, Susie buys a dozen cans of Dog's Dinner dog food at $1.89 per can. She also buys two bags of 'Dem Bones dental chews that each cost $12.69, and a new toy for $10.25. She pays sales tax at a rate of 7.25%. What is her total cost for the month of June?

12 x $1.89 = $22.68
2 x $12.69 = $25.38
1 x $10.25 = $10.25

$22.68 + $25.38 + $10.25 = $58.31

$58.31 x 7.25 = $422.75
$422.75 ÷ 100 = $4.23
$4.23 + $58.31 = $62.54

2. In July, the weather is especially hot, so Susie buys a doggie sprinkler toy for $39.95. Barksalot also needs a new collar. The collar costs $8.00. She buys another dozen cans of Dog's Dinner dog food, as well as a new bottle of flea shampoo for $9.99. No prices have changed since June, and the sales tax remains the same. What is the total amount of her expenses in July?

1 x $39.95 = $39.95
1 x $8.00 - $8.00
12 x $1.89 = $22.68
1 x $9.99 = $9.99

$39.95 + $8.00 + $22.68 + $9.99 = $80.62

$80.62 x 7.25 = $584.50
$584.50 ÷ 100 = $5.85
$5.85 + $80.62 = $86.47

3. In August, Barksalot needs a haircut. A trip for Barksalot to go to Perfect Pet's doggie day spa costs Susie $79.50. Susie also decides to treat her pooch to a big, tasty bone for $10.50. She buys another dozen cans of Dog's Dinner dog food, only this month, the cans are on sale for 20 percent off the regular price of $1.89 per can. Given that the sales tax rate has stayed the same, how much does Susie spend on pet expenses in August?

First, calculate price of dog food:
12 x $1.89 = $22.68
$22.68 x 20 = $453.60
$453.60 ÷ 100 = $4.54
$22.68 – $4.54 = $18.14
$79.50 + $10.50 + $18.14 = $108.14
$108.14 x 7.25 = $784.02
$784.02 ÷ 100 = $7.84
$108.14 + $7.84 = $115.98

4. In September, it's time for Barksalot to get his annual checkup at the vet. Barksalot needs to get his teeth brushed for $50, a rabies booster vaccination for $49, and an anti-flea treatment for $18. Susie has a coupon that gives her a discount of 15 percent off the vaccination. There's no sales tax. What will be the total bill for Barksalot's visit to the vet?

First, calculate the price of the vaccination:
$49 x 15 = $735
$735 ÷ 100 = $7.35
$49 – $7.35 = $41.65
$50 + $41.65 + $18 = $109.65

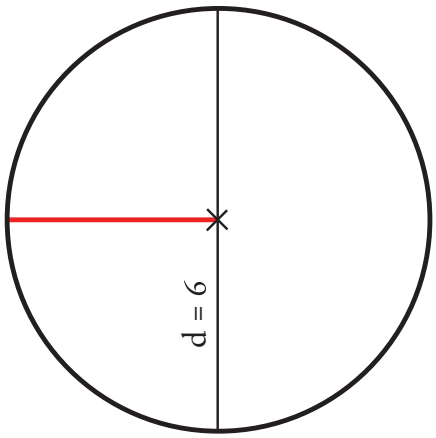
PROBLEMS

Find the radius, circumference and area of this circle. Round your answers to the nearest hundredth.

r=3

C=18.84

A=28.26

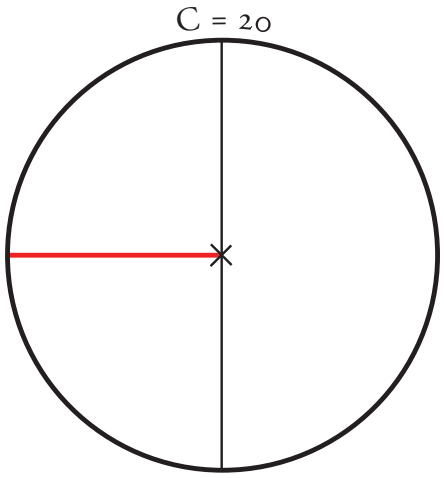


Find the radius, diameter and area of this circle. Round your answers to the nearest hundredth.

r=3.19

d=6.37

A=31.97

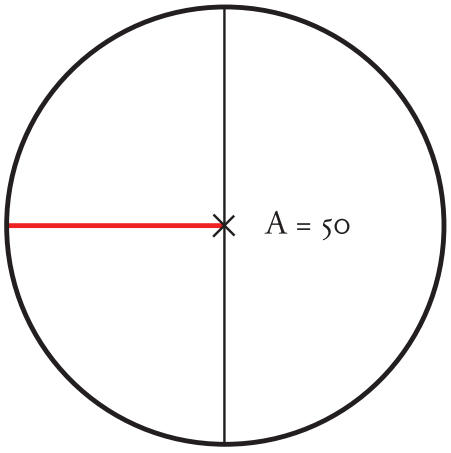


Find the radius, diameter and circumference of this circle. Round your answers to the nearest hundredth.

r=3.99

d=7.98

c=25.06



Algebraic Expressions

(answer sheet)

Simplify the following expressions.

1.) $5a + 6a =$ 11a

2.) $3a + a =$ 4a

3.) $8a - 3a =$ 5a

4.) $10a - 2a =$ 8a

5.) $9a + 4a =$ 13a

6.) $11a - 7a =$ 4a

7.) $4b + 3b =$ 7b

8.) $12b - 6b =$ 6b

9.) $5b + 9b =$ 14b

Complete the following expressions.

1.) $12 \times 3 - 5 + 4 =$ 35
$36 - 5 + 4$
$31 + 4$

2.) $4 + 7 \times 2 - 8 =$ 10
$4 + 14 - 8$
$18 - 8$

3.) $5 - 7 + 2 \times 10 =$ 18
$5 - 7 + 20$
$20 - 2$

4.) $15 \div 3 + 8 \times 5 =$ 45
$5 + 8 \times 5$
$5 + 40$

5.) $11 \times 3 - 12 \div 4 =$ 30
$33 - 12 \div 4$
$33 - 3$

6.) $5 + 9 - 16 \div 2 =$ 6
$5 + 9 - 8$
$14 - 8$

Combine like terms to simplify the following expressions.

1.) $3a(a + 4) - 2a + 7 =$ $3a^2 + 10a + 7$
$3a^2 + 12a - 2a + 7$

2.) $5a + 3a - 15 \div 3 =$ $8a - 5$
$5a + 3a - 5$

3.) $4(3 + 9) + 10a - 4a =$ $48 + 6a$
$4(12) + 10a - 4a$
$48 + 10a - 4a$

4.) $(21 \div 7)(4a + a) - 12 =$ $15a - 12$
$3(4a + a) - 12$
$3(5a) - 12$

5.) $17 + 4(3 + a) - a =$ $29 + 3a$
$17 + 12 + 4a - a$
$29 + 4a - a$

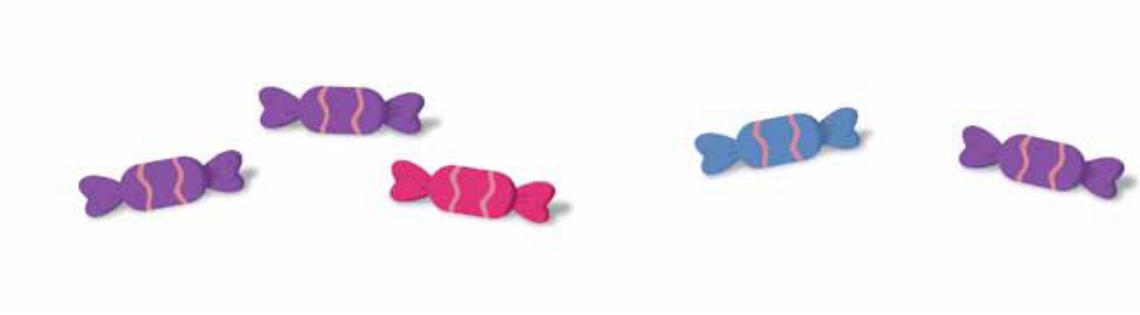
6.) $10a - 4a + 27 \div 3 =$ $6a + 9$
$10a - 4a + 9$

Delicious Decimals

round and compare

Use the greater than, less than, and equal to symbols (>, <, =) to compare each set of decimals.

1. 21.070 [=] 21.07
2. 784.15 [>] 13.064
3. 4.863 [<] 238.479
4. 32.4 [<] 32.41
5. 0.002 [>] .001
6. 34.578 [<] 46.2



Round each decimal to the given place.

1. round 782.164 to the nearest tenth — 782.2
2. round 3.004 to the nearest whole number — 3
3. round 943.492 to the nearest tenth — 943.5
4. round 1.209 to the nearest hundredth — 1.21
5. round 40.489 to the nearest whole number — 40

MATH
DECIMALS

Rounding off to a decimal place is like giving a number a little trim. Round each decimal off to the place shown.
Remember, if the number you are rounding off is 5 or more, round up. If it is 4 or less, round down.

Place Value Guide

4	.	9	2	4
ones		tenths	hundredths	thousandths

Tenths

56.6

450.9

78.6

2.4

Hundredths

12.30

25.13

82.98

61.24

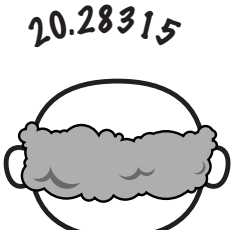
Mixed

11.3

Tenths

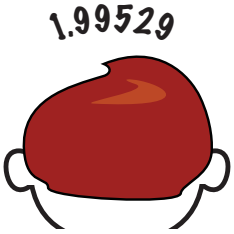
164.26

Hundredths



20.3

Tenths



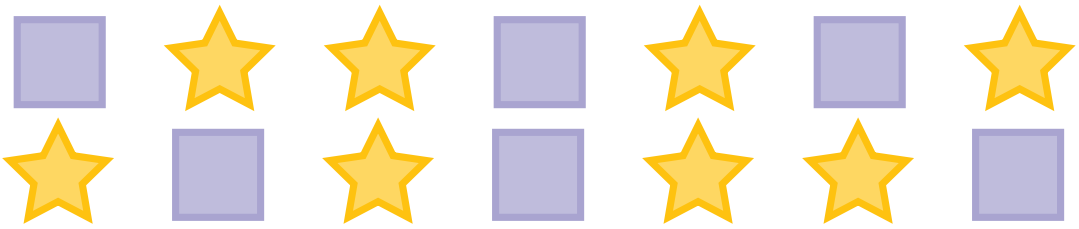
2.00

Hundredths

Name **Date**

Find the Ratios

A ratio is the comparison between two or more numbers.



Look at the example above. There are six squares and eight stars, so the ratio of squares to stars are 6 to 8 or **6:8**. We are also able to say that the ratio of stars to squares is 8 to 6 or **8:6**.

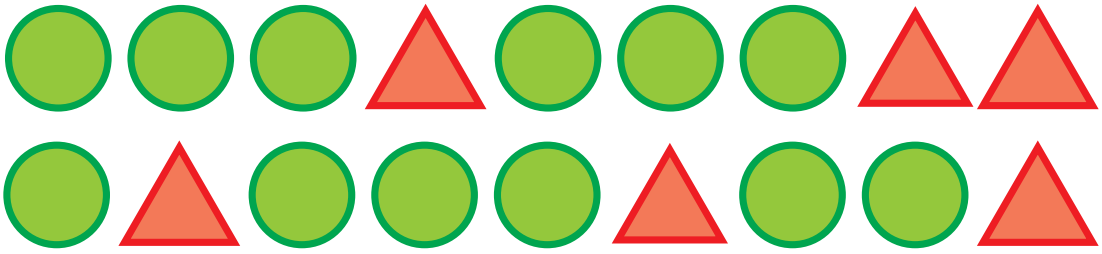
We can simplify the ratio by finding the biggest common number and divide it by both numbers. The number of stars and squares is divisible by two. So **6:8 = 3:4**, and **8:6 = 4:3.**

Answer the questions below.

1) What is the ratio of stars to squares? 3 : 6

2) What is the ratio of circles to triangles? 6 : 2

3) What is the ratio of circles to triangles simplified? 3 : 1



4) What is the ratio of triangles to circles? 6 : 12

5) What is the ratio of triangles to circles simplified? 2 : 1 or 6:3

6) What is the ratio of circles to triangles simplified? 1 : 2 or 3:6

SKILLS PRACTICE 3 ANSWERS

MIXED + IMPROPER FRACTIONS

For each of the following fractions, give them the appropriate label and rewrite them in the alternate form. Show your work.

$4\frac{5}{7}$ Mixed $7 \times 4 = 28$ $28 + 5 = 33$ $\frac{33}{7}$	$\frac{21}{5}$ Improper $4\frac{1}{5}$	$\frac{34}{5}$ Improper $6\frac{4}{5}$
$8\frac{1}{6}$ Mixed $\frac{49}{6}$	$6\frac{3}{5}$ Mixed $\frac{33}{5}$	$8\frac{1}{2}$ Mixed $\frac{17}{2}$
$6\frac{4}{7}$ Mixed $\frac{46}{7}$	$\frac{32}{5}$ Improper $6\frac{2}{5}$	$\frac{31}{4}$ Improper $7\frac{3}{4}$