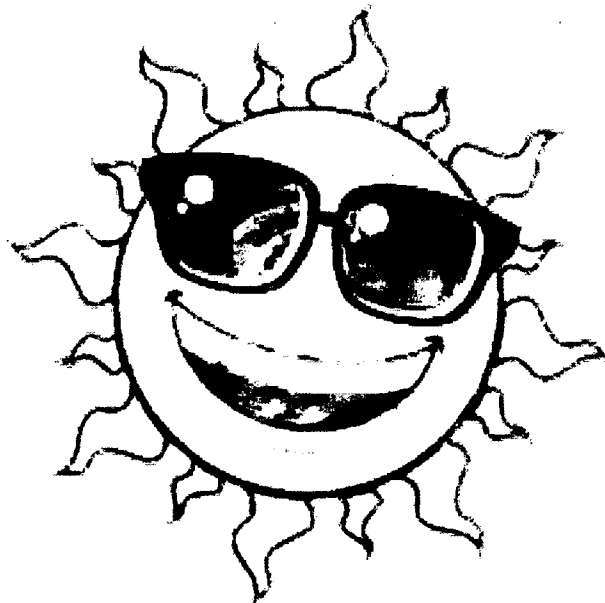




**GRADE 6
SUMMER MATH PACKET**



NAME:

This packet should be given to your 7th grade math teacher on the first day of school in August 2018.

Operations with Integers

Rules

ADDITION

Adding integers with the Same Sign – Add the absolute values of the numbers. Use the sign of the numbers.

Adding integers with Different Signs – Subtract the absolute values of the numbers. Use the sign of the number with the larger absolute value.

SUBTRACTION

Change every subtraction problem to adding the opposite of the second number. Then use the rules for addition.

MULTIPLICATION AND DIVISION

The product or quotient of two numbers with the same sign is positive.

The product or quotient of two numbers with different signs is negative.

Adding Integers (A)

Use an integer strategy to find each answer.

$$(-23) + 11 =$$

$$23 + 2 =$$

$$11 + (-5) =$$

$$22 + 18 =$$

$$1 + (-4) =$$

$$(-6) + (-25) =$$

$$(-9) + (-13) =$$

$$17 + 15 =$$

$$7 + 3 =$$

$$4 + 10 =$$

$$4 + (-13) =$$

$$9 + 22 =$$

$$7 + (-24) =$$

$$16 + 16 =$$

$$(-10) + 19 =$$

$$(-20) + (-1) =$$

$$15 + (-19) =$$

$$(-16) + 19 =$$

$$16 + (-13) =$$

$$(-4) + 23 =$$

$$12 + 5 =$$

$$(-13) + 20 =$$

$$(-8) + (-15) =$$

$$(-8) + 1 =$$

$$(-23) + 3 =$$

$$(-21) + (-14) =$$

$$7 + 16 =$$

$$2 + 11 =$$

$$19 + (-20) =$$

$$17 + 13 =$$

Subtracting Integers (A)

Use an integer strategy to find each answer.

$$(+3) - (-50) =$$

$$(+30) - (+31) =$$

$$(+14) - (+28) =$$

$$(-37) - (+2) =$$

$$(+31) - (-11) =$$

$$(-10) - (-33) =$$

$$(+8) - (+32) =$$

$$(-23) - (-34) =$$

$$(+21) - (+3) =$$

$$(+15) - (+11) =$$

$$(+26) - (-49) =$$

$$(-48) - (-30) =$$

$$(+6) - (+44) =$$

$$(-40) - (-32) =$$

$$(-7) - (+7) =$$

$$(+6) - (-23) =$$

$$(+37) - (-2) =$$

$$(+44) - (-15) =$$

$$(-8) - (-17) =$$

$$(-44) - (+48) =$$

$$(+44) - (+43) =$$

$$(-29) - (+35) =$$

$$(-47) - (-32) =$$

$$(+23) - (-11) =$$

$$(+35) - (-47) =$$

$$(+1) - (-3) =$$

$$(-15) - (+12) =$$

$$(+32) - (+6) =$$

$$(+18) - (+20) =$$

$$(-49) - (+4) =$$

Multiplying Integers (A)

Find each product.

$(-1) \times 2 =$	$(-7) \times 0 =$	$(-7) \times 7 =$	$8 \times (-4) =$
$(-3) \times (-18) =$	$5 \times 13 =$	$2 \times 1 =$	$(-8) \times (-19) =$
$(-8) \times (-7) =$	$20 \times (-9) =$	$11 \times (-1) =$	$9 \times (-4) =$
$(-11) \times 12 =$	$3 \times (-2) =$	$(-5) \times 9 =$	$16 \times 5 =$
$(-10) \times 1 =$	$6 \times (-12) =$	$(-6) \times 3 =$	$(-6) \times (-9) =$
$11 \times (-16) =$	$1 \times (-19) =$	$17 \times (-5) =$	$(-13) \times (-5) =$
$10 \times (-8) =$	$(-10) \times (-9) =$	$10 \times 12 =$	$5 \times (-11) =$
$(-14) \times 1 =$	$17 \times 7 =$	$4 \times 2 =$	$(-8) \times (-2) =$
$19 \times (-8) =$	$10 \times (-7) =$	$(-11) \times 6 =$	$7 \times (-18) =$
$(-6) \times (-4) =$	$(-20) \times 13 =$	$9 \times 7 =$	$14 \times (-8) =$
$6 \times 5 =$	$13 \times 17 =$	$12 \times 2 =$	$1 \times 10 =$
$(-2) \times 13 =$	$(-20) \times (-20) =$	$(-18) \times (-20) =$	$20 \times 6 =$
$2 \times 8 =$	$20 \times 15 =$	$15 \times 14 =$	$17 \times (-1) =$
$(-6) \times 20 =$	$(-3) \times (-15) =$	$(-20) \times 15 =$	$(-9) \times 1 =$
$(-11) \times (-4) =$	$(-1) \times (-19) =$	$11 \times (-6) =$	$9 \times (-17) =$
$18 \times (-1) =$	$(-19) \times 13 =$	$9 \times 0 =$	$8 \times 9 =$
$4 \times (-3) =$	$10 \times (-1) =$	$13 \times 19 =$	$2 \times (-11) =$
$6 \times (-6) =$	$1 \times 2 =$	$6 \times (-9) =$	$0 \times (-4) =$
$19 \times 17 =$	$19 \times 1 =$	$(-10) \times (-3) =$	$11 \times (-3) =$
$(-17) \times (-9) =$	$17 \times 14 =$	$(-8) \times 14 =$	$(-7) \times 17 =$
$12 \times (-14) =$	$11 \times (-8) =$	$(-9) \times 13 =$	$11 \times (-17) =$
$18 \times (-7) =$	$(-19) \times (-17) =$	$(-19) \times (-10) =$	$18 \times 1 =$
$20 \times (-6) =$	$12 \times 8 =$	$(-3) \times (-11) =$	$(-14) \times 0 =$
$(-16) \times 7 =$	$2 \times (-8) =$	$(-12) \times (-9) =$	$16 \times (-14) =$
$(-3) \times (-5) =$	$13 \times (-15) =$	$15 \times 17 =$	$8 \times (-5) =$

All Operations with Integers (A)

Use an integer strategy to find each answer.

$$(-160) \div (-8) =$$

$$20 - (-19) =$$

$$(-20) \div (-20) =$$

$$(-4) - 19 =$$

$$9 + (-25) =$$

$$(-21) + (-7) =$$

$$(-12) \times 21 =$$

$$11 \times (-20) =$$

$$12 + 9 =$$

$$7 + (-13) =$$

$$(-3) \times (-16) =$$

$$125 \div (-25) =$$

$$(-220) \div (-22) =$$

$$(-15) + 1 =$$

$$(-20) - 17 =$$

$$(-11) - (-19) =$$

$$7 \times 11 =$$

$$12 - (-4) =$$

$$72 \div 18 =$$

$$(-22) - (-24) =$$

$$(-5) \times (-9) =$$

$$(-13) \times (-5) =$$

$$(-11) \times 18 =$$

$$150 \div (-25) =$$

$$(-3) - 14 =$$

$$(-10) + 3 =$$

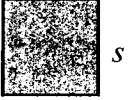

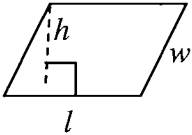
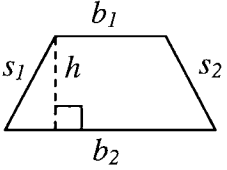
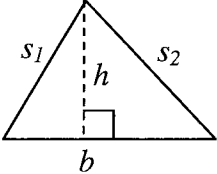
$$(-16) \times (-18) =$$

$$(-16) - 21 =$$

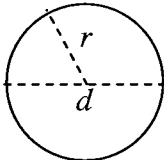
$$(-264) \div (-12) =$$

$$3 \times 25 =$$

Geometry Formulas Areas and Perimeters

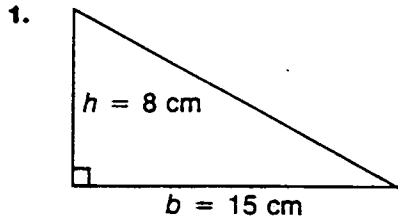
Figure	Sketch	Area	Perimeter
Square		$A = s^2$	$P = 4s$
Rectangle		$A = lw$	$P = 2l + 2w$
Parallelogram		$A = lh$	$P = 2l + 2w$
Trapezoid		$A = \frac{1}{2}h(b_1 + b_2)$	$P = s_1 + s_2 + b_1 + b_2$
Triangle		$A = \frac{1}{2}bh$	$P = s_1 + s_2 + b$

Area and Circumference of a Circle

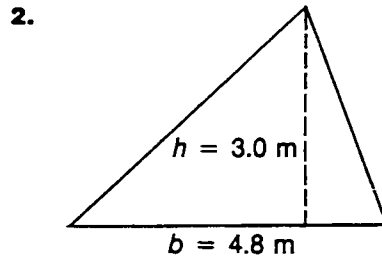
Circle		$A = \pi * r^2$	$C = 2\pi * r$ or $C = \pi * d$
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Area of Triangles and Trapezoids

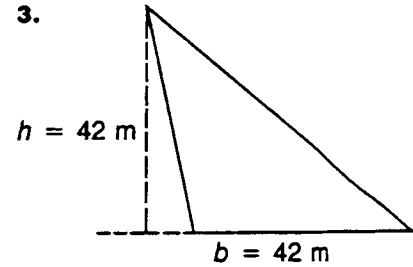
Use the formula $A = \frac{1}{2}bh$ to find the area of each triangle.



Area = _____

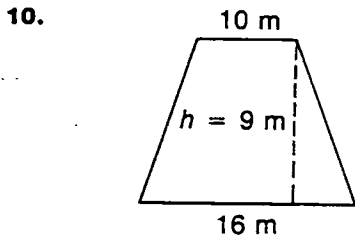


Area = _____

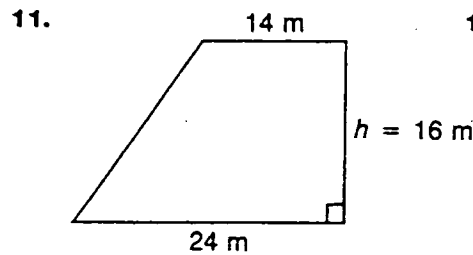


Area = _____

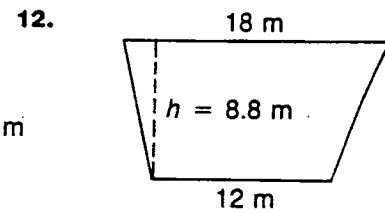
Use the formula $A = \frac{1}{2}(b_1 + b_2)h$ to find the area of each trapezoid.



Area = _____



Area = _____



Area = _____

13. $b_1 = 20$ cm
 $b_2 = 26$ cm
 $h = 15$ cm

Area = _____

14. $b_1 = 3.8$ m
 $b_2 = 5.6$ m
 $h = 2.5$ m

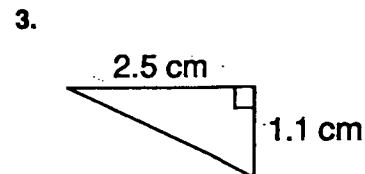
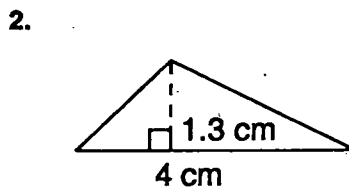
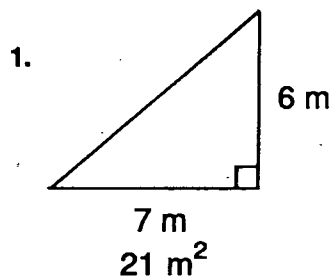
Area = _____

15. $b_1 = 4.2$ m
 $b_2 = 3.6$ m
 $h = 1.9$ m

Area = _____

Area of Parallelograms and Triangles

Find the area of each triangle.

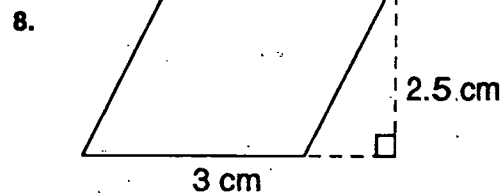
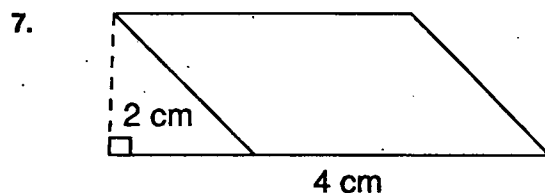


4. $b = 3$ cm
 $h = 4$ cm

5. $b = 4.7$ m
 $h = 8$ m

6. $b = 2.7$ km
 $h = 1.8$ km

Find the area of each parallelogram.



Find the missing measure for each parallelogram.

9. $b = 6.3$ m
 $h = 3.3$ m

$A =$ _____

10. $b = 3.9$ cm
 $h = 4.3$ cm

$A =$ _____

11. $b = 8$ cm

$h =$ _____
 $A = 16$ cm²

12. $b =$ _____

$h = 5$ cm
 $A = 60$ cm²

Comparing and Ordering Integers

When comparing two integers it is helpful to use a number line.

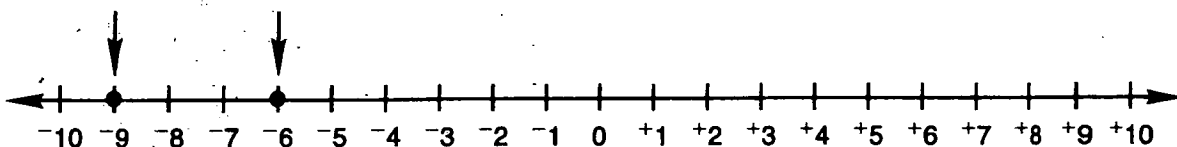
+10 is greater than +1.

+10 is to the right of +1 on the number line.

The integer that is farther to the right is greater.

Compare -6 and -9 .

First locate each integer on the number line.

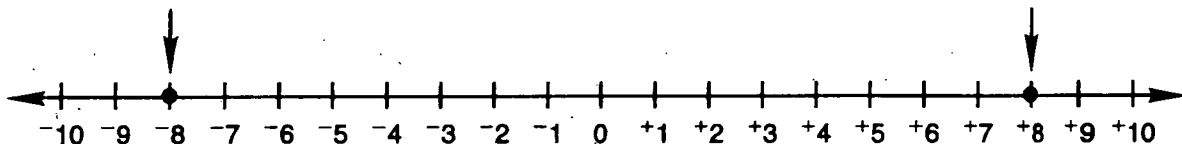


-6 is to the right of -9 .

$-6 > -9$

Compare -8 and $+8$.

Locate -8 and $+8$ on the number line.



$+8$ is to the right of -8 .

$+8$ is greater than -8 .

$-8 < +8$

Use the number line to compare. Write $>$ or $<$ in each \bigcirc .

1. $+6 \bigcirc +3$

2. $+2 \bigcirc +8$

3. $-2 \bigcirc +2$

4. $-3 \bigcirc -6$

5. $+9 \bigcirc -9$

6. $0 \bigcirc -5$

7. $-10 \bigcirc -5$

8. $0 \bigcirc +10$

9. $-7 \bigcirc -8$

10. $-2 \bigcirc +5$

11. $+7 \bigcirc -10$

12. $-5 \bigcirc -1$

Comparing Integers (A)

Compare the pairs of integers using $<$, $>$, or $=$

$-1 \square 2$

$19 \square 20$

$24 \square 23$

$22 \square 19$

$-10 \square -7$

$25 \square 24$

$-21 \square -22$

$-13 \square -14$

$-9 \square -12$

$-14 \square -13$

$15 \square 18$

$-14 \square -13$

$-2 \square -3$

$7 \square 4$

$-9 \square -8$

$1 \square 0$

$6 \square 9$

$5 \square 8$

$-15 \square -12$

$-17 \square -14$

$-7 \square -9$

$18 \square 21$

$-7 \square -6$

$-5 \square -2$

$-4 \square -5$

$3 \square 4$

$-8 \square -11$

$-3 \square -1$

$-20 \square -22$

$-8 \square -5$

$23 \square 20$

$-11 \square -8$

$21 \square 18$

$15 \square 16$

$7 \square 10$

$-23 \square -25$

$-23 \square -26$

$-8 \square -9$

$-5 \square -8$

$-17 \square -15$

Ordering Integers (A)

Write each set of integers in the order shown.

least	greatest	least	greatest
49 _____ -5 _____ -13 _____ -48 _____ 23 _____ 4 _____	39 _____ -6 _____ 28 _____ -12 _____ 0 _____ -29 _____	-43 _____ -45 _____ 29 _____ -32 _____ -21 _____ -19 _____	32 _____ 28 _____ -7 _____ -50 _____ 1 _____ -10 _____
least	least	greatest	least
-24 _____ 15 _____ -37 _____ 27 _____ -44 _____ -29 _____	-13 _____ -34 _____ -41 _____ 10 _____ 4 _____ -14 _____	31 _____ -47 _____ 45 _____ -29 _____ -18 _____ -3 _____	49 _____ 40 _____ -9 _____ 14 _____ -35 _____ 28 _____
least	greatest	greatest	least
-18 _____ -5 _____ -4 _____ 3 _____ 14 _____ 32 _____	-18 _____ 26 _____ -7 _____ 49 _____ 29 _____ -24 _____	-21 _____ -39 _____ 39 _____ 17 _____ -9 _____ 24 _____	23 _____ 3 _____ -29 _____ -19 _____ -35 _____ -49 _____
greatest	least	greatest	least
-24 _____ 37 _____ 6 _____ 21 _____ 14 _____ 36 _____	39 _____ 11 _____ -27 _____ 20 _____ 8 _____ -3 _____	-47 _____ 22 _____ 29 _____ -48 _____ 3 _____ -32 _____	37 _____ 9 _____ -17 _____ 24 _____ -3 _____ -23 _____
least	greatest	least	greatest

Using the Distributive Property

Simplify each expression.

1) $-6(a + 8)$

2) $4(1 + 9x)$

3) $6(-5n + 7)$

4) $(9m + 10) \cdot 2$

5) $(-4 - 3n) \cdot -8$

6) $8(-b - 4)$

7) $(1 - 7n) \cdot 5$

8) $-6(x + 4)$

9) $5(3m - 6)$

10) $(-6p + 7) \cdot -4$

11) $5(b - 1)$

12) $(x + 9) \cdot 5$

$$13) -4(-8x - 8)$$

$$14) -6(7 + x)$$

$$15) -3(x - 5)$$

$$16) -5(10x + 1)$$

$$17) (1 + 2v) \cdot 5$$

$$18) -8(1 - 5x)$$

$$19) -7(5k - 4)$$

$$20) -5(7a - 6)$$

$$21) 5(n + 6)$$

$$22) 4(3r - 8)$$

$$23) 3(5 + 5x)$$

$$24) (1 + 9x) \cdot -10$$

Name _____

Add Algebraic Expressions

Essential Question How can you add algebraic expressions?



During track practice, Steven runs laps and then runs cross-country. The expression $3x + 2$ represents the distance in miles he ran on Monday, where x is the length in miles of each lap. The expression $4x + 3$ represents the distance in miles he ran on Tuesday. Write and simplify an expression to show the total distance in miles Steven ran on both days.

Math Idea

Is $3x + 2 = 5x$? Explain.

Day	Laps	Cross-Country Distance (mi)
Monday	3	2
Tuesday	4	3



Write and simplify an algebraic expression for the total distance.

STEP 1 Write the algebraic expression for the total distance.

$$\begin{array}{cc} \text{Monday} & \text{Tuesday} \\ \downarrow & \downarrow \\ (3x + 2) & + (4x + 3) \end{array}$$

STEP 2 Use the Associative Property of Addition to remove the parentheses.

$$3x + 2 + 4x + 3$$

STEP 3 Simplify the expression by combining like terms.

Use the Commutative Property of Addition to reorder the terms.

$$3x + 4x + 2 + 3$$

Use parentheses to group like terms.

$$(3x + 4x) + (2 + 3)$$

Combine like terms.

$$7x + 5$$

So, the simplified expression $7x + 5$ represents the total distance in miles. Steven ran $7x + 5$ miles on Monday and Tuesday.



Mathematical Practices

Explain how you can identify like terms in an algebraic expression.

Share and Show



Find the sum of the expressions $(5y + 29)$ and $(8 + 6y)$.

1. Write the algebraic expression for the total.
2. Use the Associative Property of Addition to remove the parentheses.

3. Use the Commutative Property of Addition to reorder the terms.

4. Use parentheses to group like terms.

5. Combine like terms.

Find the sum of the expressions.

6. $(x + 12) + (11 + 2x)$

7. $(4s + 1) + (8s + 14)$

8. $(1 + 41y) + (6y + 2)$

On Your Own

Find the sum of the expressions.

9. $(10t + 7) + (8 + 3t)$

10. $(8 + 3x) + (11 + 17x)$

11. $(9 + 19c) + (18c + 4)$

12. $(16y + 0) + (y + 23)$

13. $(45t + 27) + (23t + 32)$

14. $(35 + 6x) + (6 + x)$

Problem Solving



15. Zoe orders 3 books for her friend Amelia and 4 books for her friend Edward. She pays an additional shipping charge of \$5 for Amelia's order and \$7 for Edward's order. Simplify the expression $(3c + 5) + (4c + 7)$, where c represents the cost of each book, to find the total Zoe spent on both orders.

16. Molly works 4 hours on Saturday and earns an additional \$22 in tips. On Sunday, she works 6 hours and earns an additional \$15 in tips. Simplify the expression $(4h + 22) + (6h + 15)$, where h represents the amount she is paid per hour, to find the total she earned over the weekend.

Name _____

Add Algebraic ExpressionsFind the sum of the expressions $(8n + 21)$ and $(4 + n)$.

- Write the algebraic expression for the sum.
- Use the Associative Property of Addition to remove the parentheses.

$$(8n + 21) + (4 + n)$$

- Use the Commutative Property of Addition to reorder the terms.
 - Use parentheses to group like terms.
 - Combine like terms.
-

Find the sum of the expressions.

6. $(13m + 13) + (4m + 1)$

7. $(6 + 22b) + (18 + 23b)$

8. $(19 + 4d) + (d + 8)$

9. $(68x + 7) + (14 + 11x)$

10. $(46f + 5) + (4f + 20)$

11. $(71 + 6w) + (13w + 18)$

Problem Solving

12. The side lengths of a triangle are $5 + 2g$, $8 + g$, and $4 + 3g$. Write a simplified expression for the perimeter of the triangle.
-

13. Greg worked 7 hours on Friday and earned an additional \$40 in tips. Then he worked 6 hours on Saturday and earned an additional \$35 in tips. Greg earns d dollars each hour that he works. Write a simplified expression for the total amount of dollars that Greg earned.
-

Name _____

Solve Two-Step Equations

Essential Question How do you solve two-step equations?



Olivia orders 5 sets of beads. She pays \$7 for shipping, and the total cost of the order is \$52. Solve the equation $5p + 7 = 52$ to find the price p in dollars of each set of beads.

Math Idea

Suppose Olivia had a coupon. What operation would this indicate?

Solve the equation to find the price of each set of beads.

STEP 1 Write the equation.

$$5p + 7 = 52$$

STEP 2 Use the Properties of Equality and inverse operations to get the variable by itself on one side. First undo addition or subtraction, and then undo multiplication or division.

Undo the addition. Subtract 7 from both sides.

$$5p + 7 - 7 = 52 - 7$$

$$5p = 45$$

Undo the multiplication. Divide both sides by 5.

$$\frac{5p}{5} = \frac{45}{5}$$

$$p = 9$$

So, the price of each set of beads is \$9.

Math Talk

Explain how you know that your answer is correct.

Try This! Tell how to solve the equation for x .

A. $6x - 9 = 15$

Share and Show



1. Solve the equation $\frac{1}{4}c + 6 = 18$.

First undo the _____ by using _____.

Then undo the _____ by using _____.

$c =$ _____

Solve the equation.

2. $12x + 2 = 38$

3. $\frac{1}{3}y - 5 = 3$

4. $3 + 7p = 52$

On Your Own

Solve the equation.

5. $23 + 4t = 59$

6. $2x - 8 = 64$

7. $5r + 30 = 105$

8. $\frac{1}{2}p + 15 = 29$

9. $3c + 58 = 97$

10. $6y - 37 = 29$

Problem Solving



11. Lee started a round on a game show with 65 points. He answered all 5 questions during the round correctly. Lee's score at the end of the round was 105 points. Solve the equation $65 + 5p = 105$ to find the number of points p that Lee earned for each correct answer.

12. To repair a bike, a shop charges a fee of \$11, plus \$13 for each hour that the mechanic works on the bike. Minh paid \$63 to have his bike fixed. Solve the equation $11 + 13h = 63$ to find the number of hours h the mechanic worked on Minh's bike.

Name _____

Solve Two-Step Equations**Solve the equation.**

1.

$$\begin{aligned}
 &12 + 6b = 66 \\
 12 - 12 + 6b &= 66 - 12 \\
 6b &= 54 \\
 \frac{6b}{6} &= \frac{54}{6} \\
 b &= 9
 \end{aligned}$$

First, subtract 12 from both sides.Next, divide both sides by 6.

2. $\frac{1}{2}v + 3 = 10$

3. $15e - 9 = 36$

4. $\frac{5}{6}b - 1 = 9$

5. $33 = 5g + 3$

Solve.

6. Renee solved a two-step equation to find x . First, she subtracted 11 from both sides. Then, she divided both sides by 4. Write an equation that she could have solved.

7. Perry solved a two-step equation to find x . First, he added 0.2 to both sides. Then, he divided both sides by $\frac{1}{7}$. Write an equation that he could have solved.

Problem Solving

8. Morgan buys 6 gel pens. He has a coupon for \$0.80 off the price of one gel pen. The total cost after the coupon is applied is \$9.52. Solve the equation $6p - 0.80 = 9.52$ to find the price p in dollars of each gel pen.

9. Kirsten downloads 8 songs to her computer. It takes 289 seconds, including 9 seconds to update the software. Solve the equation $8t + 9 = 289$ to find the average time t in seconds to download each song.

Name : _____

Score : _____

Evaluate the Expressions - Single Variable

Easy: 51

Evaluate each algebraic expression for the given value of the variable.

1) $16 - x$ at $x = 5$

2) $3n$ at $n = 11$

3) p^3 at $p = 2$

4) $r + 4$ at $r = 13$

5) $\frac{m}{2} + 1$ at $m = 6$

6) $c - 9$ at $c = 16$

7) b^2 at $b = 4$

8) $\frac{y}{5}$ at $y = 15$

9) $21 - z$ at $z = 10$

10) $\frac{q}{3} + 4$ at $q = 3$

Name _____

Parts of a Circle

Essential Question How can you identify and draw the parts of a circle?

A **circle** is a closed figure made up of points that are the same distance from a point called the **center**. A circle is named by its center point. Other parts of a circle include:

- A **radius** is a line segment with one endpoint at the center of the circle and the other endpoint on the circle.
- A **chord** is a line segment that has both of its endpoints on the circle.
- A **diameter** is a chord that passes through the center of the circle.

Unlock the Problem

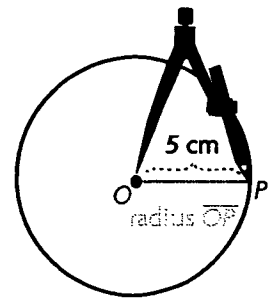
Use a compass to draw and label the parts of a circle.

Activity

Materials compass, straightedge

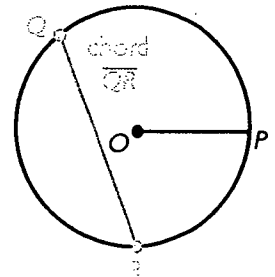
A Draw circle O with radius \overline{OP} that measures 5 centimeters.

- Draw and label center point O . Place the compass point on it.
- Open the compass to 5 centimeters and draw the circle.
- Label point P on the edge of the circle.
- With a straightedge, draw the radius \overline{OP} .



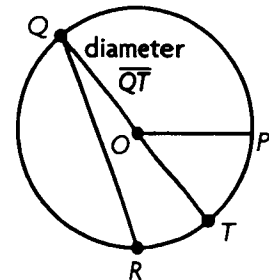
B Draw chord \overline{QR} on circle O .

- Label points Q and R on the circle.
- Use a straightedge to connect Q and R to create chord \overline{QR} .



C Draw diameter \overline{QT} on circle O .

- Draw a line segment that includes point Q and passes through the center.
- Label point T where the line segment meets the other side of the circle.



Math Talk

Mathematical Practices

How is the length of the diameter related to the length of the radius?

Share and Show



Draw and label a circle with a radius of 4 cm. Then draw and label the following.

1. center O
2. radius \overline{OB}
3. chord \overline{CD}
4. diameter \overline{BE}

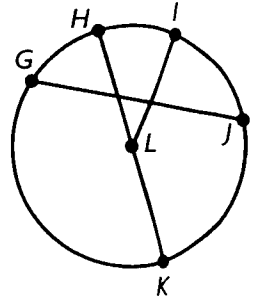
Identify each part of the circle shown below.

5. the center

6. a radius

7. a chord

8. a diameter



Do Your Own

Draw and label a circle with a radius of 6 cm. Then draw and label the following.

9. center A
10. radius \overline{AY}
11. chord \overline{MN}
12. diameter \overline{XY}

Problem Solving Real World

13. Dave needs to buy steel to replace 5 broken spokes on his bicycle wheel. Each spoke is equal to the length of the radius of the wheel. The diameter of the wheel is 24 inches. How many inches of steel does Dave need to make 5 spokes?

LESSON

9-1

Circumference

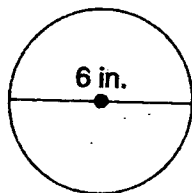
Reteach

The distance around a circle is called the **circumference**. To find the circumference of a circle, you need to know the diameter or the radius of the circle.

The ratio of the circumference of any circle to its diameter $\left(\frac{C}{d}\right)$

is always the same. This ratio is known as π (pi) and has a value of approximately 3.14.

To find the circumference C of a circle if you know the diameter d , multiply π times the diameter. $C = \pi \cdot d$, or $C \approx 3.14 \cdot d$.



$$C = \pi \cdot d$$

$$C \approx 3.14 \cdot d$$

$$C \approx 3.14 \cdot 6$$

$$C \approx 18.84$$

The circumference is about 18.8 in. to the nearest tenth.

The diameter of a circle is twice as long as the radius r , or $d = 2r$.

To find the circumference if you know the radius, replace d with $2r$ in the formula. $C = \pi \cdot d = \pi \cdot 2r$

Find the circumference given the diameter.

1. $d = 9$ cm

$$C = \pi \cdot d$$

$$C \approx 3.14 \cdot \underline{\hspace{2cm}}$$

$C \approx \underline{\hspace{2cm}}$
 The circumference is cm to the nearest tenth of a centimeter.

Find the circumference given the radius.

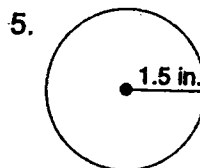
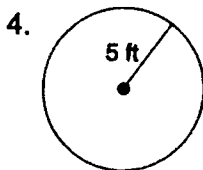
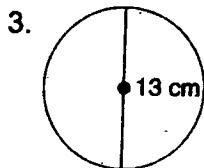
2. $r = 13$ in.

$$C = \pi \cdot 2r$$

$$C \approx 3.14 \cdot (2 \cdot \underline{\hspace{2cm}})$$

$C \approx 3.14 \cdot \underline{\hspace{2cm}}$
 $C \approx \underline{\hspace{2cm}}$
 The circumference is in. to the nearest tenth of an inch.

Find the circumference of each circle to the nearest tenth. Use 3.14 for π .

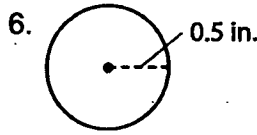
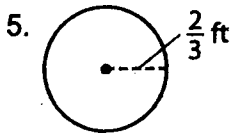
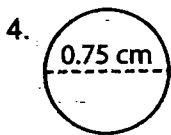
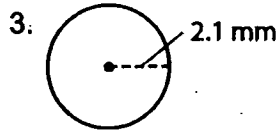
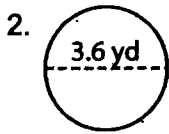
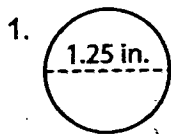


LESSON
9-1

Circumference

Practice and Problem Solving: C

Find the circumference of each circle. Use 3.14 or $\frac{22}{7}$ for π . Round to the nearest hundredth, if necessary.



Solve each problem.

7. The circumference of a clock is 22 inches. What is the radius of the clock?

8. The circumference of a circular hot tub at a hotel is 56.5 yards. What is the diameter of the hot tub?

9. In NCAA basketball rules, the basketball can have a maximum circumference of 30 inches. What is the maximum diameter of an NCAA basketball to the nearest hundredth?

10. Melanie wants to put ribbon around the circumference of a circular section of the city park. Ribbon comes in rolls of 40 feet. The radius of the section of the park is 100 feet. How many rolls of ribbon should Melanie buy?

LESSON

9-2

Area of Circles

Reteach

The area of a circle is found by using the formula $A = \pi r^2$. To find the area, first determine the radius. Square the radius and multiply the result by π . This gives you the exact area of the circle.

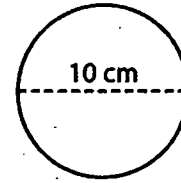
Example:

Find the area of the circle in terms of π .

The diameter is 10 cm. The radius is half the diameter, or 5 cm. Area is always given in square units.

$$5^2 = 25$$

$$A = 25\pi \text{ cm}^2$$



Find the area of each circle in terms of π .

1. A vinyl album with a diameter of 16 inches. _____
2. A compact disc with a diameter of 120 mm. _____

Sometimes it is more useful to use an estimate of π to find your answer. Use 3.14 as an estimate for π .

Example:

Find the area of the circle. Use 3.14 for π and round your answer to the nearest tenth.

The radius is 2.8 cm.

Area is always given in square units.

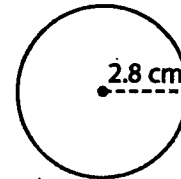
$$2.8^2 = 7.84$$

$$A = 7.84\pi \text{ cm}^2$$

$$A = 7.84 \times 3.14 \text{ cm}^2$$

$$A = 24.6176 \text{ cm}^2$$

Rounded to the nearest tenth, the area is 24.6 cm^2 .



Find the area of each circle. Use 3.14 for π and round your answer to the nearest tenth.

3. A pie with a radius of 4.25 inches. _____
4. A horse ring with a radius of 10 yards. _____

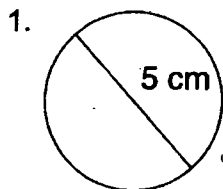
5. A round pond with a diameter of 24 m. _____
6. A biscuit with a diameter of 9.2 cm. _____

LESSON
9-2

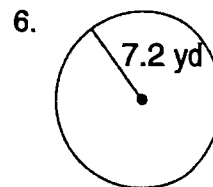
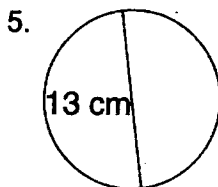
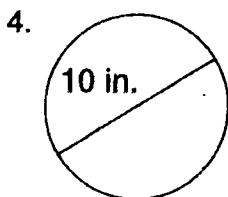
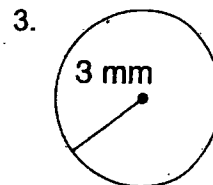
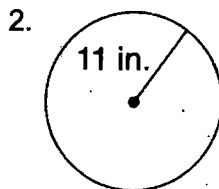
Area of Circles

Practice and Problem Solving: D

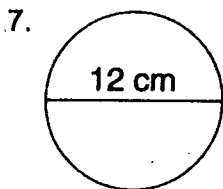
Find the area of each circle to the nearest tenth. Use 3.14 for π . The first problem is done for you.



19.6 cm²



Find the area of each circle in terms of π . The first problem is done for you.



36π cm²

