Area and Perimeter Formulas

Triangles - Common
A polygon with three angles and three sides.

Area = \( \frac{1}{2} \) base \times \text{height} = \( \frac{1}{2} bh \)

Perimeter = \( a + b + c \)

Equilateral Triangles
A Triangle with all three sides of equal length.

Area = \( \frac{\sqrt{3}}{4} \times \text{side}^2 = \frac{\sqrt{3}}{4} s^2 \)

Perimeter = \( 3 \times \text{sides} = 3s \)

Isosceles Triangles
A Triangle with two sides of equal length.

Area = \( \frac{a}{4} \sqrt{4b^2 - a^2} \)

Perimeter = \( a + 2b \)

Right Triangles
A Triangle with one right angle.

Area = \( \frac{ba}{2} \)

Perimeter = \( a + b + c \)

Square
A Square is a quadrilateral with four equal sides and angles at 90°.

Area = \( a^2 \)

Perimeter = \( 4a \)
Area and Perimeter Formulas

**Rectangle**
A Rectangle is a quadrilateral with four equal angles at 90°.

Area = lw
Perimeter = 2(w + l)

**Parallelogram**
A Parallelogram is a quadrilateral with opposite sides parallel.

Area = bh
Perimeter = 2(a + b)

**Rhombus**
A Rhombus is a Parallelogram with all sides equal.

Area = ah
Perimeter = 4a

**Trapezoid**
A Trapezoid is a Quadrilateral with at least one pair of parallel sides.

Area = \( \frac{a_1 + a_2}{2} \cdot h \)
Perimeter = \( a_1 + a_2 + b_1 + b_2 \)

**Regular n-gon**
A Regular Polygon is a polygon for which n sides and angles are equal.

Area = \( \frac{1}{2} \cdot a \cdot n \cdot s \)
Perimeter = \( n \cdot s \)
Acute angle:
An angle whose measure is less than 90 degrees. The following is an acute angle.

Right angle:
An angle whose measure is 90 degrees. The following is a right angle.

Obtuse angle:
An angle whose measure is bigger than 90 degrees but less than 180 degrees. Thus, it is between 90 degrees and 180 degrees. The following is an obtuse angle.

Straight angle
An angle whose measure is 180 degrees. Thus, a straight angle look like a straight line. The following is a straight angle.
Classify each angle as acute, obtuse, right, or straight.

1) 
2) 
3) 
4) 
5) 
6) 
7) 
8) 
9) 
10) 
11) 180° 
12) 90° 
13) 92° 
14) 94° 
15) 70° 
16) 55° 
17) 63° 
18) 31° 
19) 122° 
20) 130°
Geometry Review

Use the picture below to answer the following questions.

1. How many right angles are there? ____________________________
2. How many obtuse angles are there? ____________________________
3. How many acute angles are there? ____________________________
4. How many equilateral triangles are there? ____________________________
5. How many isosceles triangles are there? ____________________________
6. How many scalene triangles are there? ____________________________

Name each polygon below on the lines provided.

1. ____________  2. ____________  3. ____________
4. ____________  5. ____________  6. ____________
7. ____________  8. ____________
COOKIE CIRCLES
Area, Circumference, Diameters

Fill in the missing information about these cookies!

Formulas: \[ \Pi \times \text{diameter} \]
Diameter = (2)(radius)  Circumference = \( \pi \times \text{diameter} \)  Area = \( \pi r^2 \)

For this assignment please use \( \pi = 3.14 \)

8.5

Diameter: ____________
Circumference: ____________
Area: ____________

6.25

Diameter: ____________
Circumference: ____________
Area: ____________

8

Radius: ____________
Circumference: ____________
Area: ____________

11.5

Radius: ____________
Circumference: ____________
Area: ____________

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Ordered Pairs

For each letter, write the corresponding ordered pair.

A.    B.    C.    D.    E.

For each ordered pair, write the corresponding letter.

1.) (6, 4) = 2.) (5, -2) = 3.) (0, 7) = 4.) (-8, -2) =

5.) (-6, 9) = 6.) (-5, 1) = 7.) (7, -5) = 8.) (-3, -7) =
Positive Ordered Pairs

For each ordered pair, write the corresponding letter.

1. (2, 2) =
2. (8, 4) =
3. (1, 9) =
4. (5, 4) =
5. (6, 3) =
6. (4, 8) =
7. (4, 5) =
8. (9, 3) =
9. (7, 6) =
10. (3, 1) =

For each letter, write the corresponding ordered pair.

A =
B =
C =
D =
E =
F =
G =
H =
I =
J =
Complementary and Supplementary Angles

**Complementary Angles**

Two angles are complementary if they add up to 90 degrees (a right angle).

If \( \angle a + \angle b = 90^\circ \), then \( \angle a \) and \( \angle b \) are complementary angles.

**Examples:**
- 60° and 30° angles are complementary angles
- 80° and 10° angles are complementary angles
- 20° and 30° angles are not complementary angles

**Practice Problems:** solve for the missing complementary angle, \( x \).

\[
\angle 45 + \angle x = 90^\circ; \quad \angle x = \_
\angle x + \angle 32 = 90^\circ; \quad \angle x = \_
\angle 80 + \angle x = 90^\circ; \quad \angle x = \_
\]

**Supplementary Angles**

Two angles are supplementary if they add up to 180 degrees.

If \( \angle a + \angle b = 180^\circ \), then \( \angle a \) and \( \angle b \) are supplementary angles.

**Examples:**
- 150° and 30° angles are supplementary angles
- 80° and 100° angles are supplementary angles
- 70° and 90° angles are not supplementary angles

**Practice Problems:** solve for the missing supplementary angle, \( x \).

\[
\angle x + \angle 75 = 180^\circ; \quad \angle x = \_
\angle x + \angle 50 = 180^\circ; \quad \angle x = \_
\angle x + \angle 45 = 180^\circ; \quad \angle x = \_
\]

**Determine whether \( \angle a \) and \( \angle b \) are complementary or supplementary.**

\[
\begin{align*}
\angle a = 50, \angle b = 40 & \quad \angle a = 80, \angle b = 100 \\
\angle a = 35, \angle b = 145 & \quad \angle a = 75, \angle b = 15 \\
\angle a = 20, \angle b = 70 & \quad \angle a = 60, \angle b = 120 \\
\angle a = 65, \angle b = 115 & \quad \angle a = 65, \angle b = 25 \\
\end{align*}
\]
Complementary Angles

Solve for angle $x$.

1. $x = \frac{60}{(90 - 30 = 60)}$
2. $x = ____$
3. $x = ____$
4. $x = ____$
5. $x = ____$
6. $x = ____$
7. $x = ____$
8. $x = ____$
9. $x = ____$
Review of Equations

Solve each equation.

1) \(3n + 4n = -14\)

2) \(9 = -7m + 1 - 6\)

3) \(-24 = 5r + 3r\)

4) \(-6x - 6x = 12\)

5) \(-36 = 6(2 - 8n)\)

6) \(-6 + 5(-1 - b) = 19\)

7) \(-14 = -(-2x + 2)\)

8) \(51 = 7(-1 + 2v) + 2\)

9) \(7(1 + 5n) + 6(1 + 4n) = 13\)

10) \(73 = -6(k - 7) + 6(k + 5)\)

11) \(-6(3 - 3a) - 8(6a + 5) = 32\)

12) \(-9 + 4r = 4r - 3 - 6\)

13) \(6x - 2x + 8 = x + 5\)

14) \(4n + 5n + 15 = 5n + 7n\)
15) \[4m + 3 = 13 - m\]  
16) \[5p + 5 = 4 + 4p\]

17) \[8 + 6x = 8 + 8x + 7 + 3\]  
18) \[-5b + 24 = -8(b - 6) + 6b\]

19) \[3(7r - 7) = -6 + 6r\]  
20) \[-(1 - 5x) + 8 = -17 + 2x\]

21) \[-5n - 4(7 - 4n) = 36 + 7n\]  
22) \[2(-7a + 6) = -16 - 7a\]

23) \[-8(2 + 7n) = -6n + 34\]  
24) \[-7(x + 3) = -2(x + 3) - 5x\]

25) \[-4(v - 2) = -4(v - 8) - 8v\]  
26) \[2(x + 8) = -3(x + 3)\]

27) \[-7(-1 + 3a) = 5(3 - 5a)\]  
28) \[4k + 7(-4 - 2k) = -2(k - 2)\]
Review of Equations

1) \(3n + 4n = -14\)
   \(\{-2\}\)

2) \(9 = -7m + 1 - 6\)
   \(\{-2\}\)

3) \(-24 = 5r + 3r\)
   \(\{-3\}\)

4) \(-6x - 6x = 12\)
   \(\{-1\}\)

5) \(-36 = 6(2 - 8n)\)
   \(\{1\}\)

6) \(-6 + 5(-1 - b) = 19\)
   \(\{-6\}\)

7) \(-14 = -(2x + 2)\)
   \(\{-6\}\)

8) \(51 = 7(-1 + 2v) + 2\)
   \(\{4\}\)

9) \(7(1 + 5n) + 6(1 + 4n) = 13\)
   \(\{0\}\)

10) \(73 = -6(k - 7) + 6(k + 5)\)
    No solution.

11) \(-6(3 - 3a) - 8(6a + 5) = 32\)
    \(\{-3\}\)

12) \(-9 + 4r = 4r - 3 - 6\)
    \{ All real numbers. \}

13) \(6x - 2x + 8 = x + 5\)
    \(\{-1\}\)

14) \(4n + 5n + 15 = 5n + 7n\)
    \(\{5\}\)