



 <https://www.thethinkacademy.com/>

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Think Academy US ONLINE

Upper Elementary Math Program

Think Academy Elementary Math Program is designed for K to Grade 5 students, offering a professional, systematic, and comprehensive year-round curriculum based on North American learning standards. The program is divided into two main systems: **School Curriculum Track** and **Competition Track**.

- The **School Curriculum** Track is divided by students' progress and ability:
 - Core+: Aligned with school curriculum; with solid foundations and steady improvement
 - Honors: One year ahead; consistent A grades and readiness for accelerated programs
 - Challenge: 1.5–2 years ahead; full mastery of AP-level math with moderate enrichment
- The **Competition Track** is divided by thinking flexibility and concept mastery:
 - ACE: Builds competition foundations, strengthens problem-solving skills, and helps Grade 5 students reach AMC 8 Honor Roll
 - ACE+: Intensive training for advanced Olympiad pathways and higher-level competitions

Covers core knowledge points from Math Kangaroo (Grades 1–4) and AMC 8 (Grades 4–8), develops both reasoning and competition skills, promoting excellence in school academics and contests for long-term growth.!

The tiered class structure ensures every student finds a fit. All cover the seven core modules of elementary mathematics—Computation, Geometry, Number Theory, Applications, Counting and Probability, Algebra, and Combinatorics—with differences only in pace and depth.

	Elementary School									Middle School		
Grade	G3			G4			G5			G6		
Semester	Summer	Fall	Spring	Summer	Fall	Spring	Summer	Fall	Spring	Summer	Fall	Spring
Core+	Math 3			Math 4			Math 5			Math 6		
Honors	G3 Honors			G4 Honors			G5 Honors			Pre-Algebra		
Challenge	G3 Challenge			G4 Challenge			G5 Challenge			Algebra 1	Intro to Geometry	
ACE	G3 ACE			G4 ACE			G5 ACE			AMC8 HR	AMC10 Intro	

Think Academy US ONLINE

Middle School Competition Track

Student Results

2022-2024 AMC8 Number of Students Awarded:



Achievement Roll
(Lower Grade
Achievement Award)



Honor Roll
(National Top 5%)



DHR
(National Top 1%)

2022-2024 AMC10 Number of Students Awarded:



AIME Qualification
(National Top 7%)



Honor Roll
(National Top 5%)



DHR
(National Top 1%)

2024 Think Global IMO Award Winner

7金 1银

金牌总数居全球第一



International Mathematical Olympiad
Foundation Bronze Sponsor

Think Academy is an official partner of the
International Mathematical Olympiad (IMO)

Why Think Academy Competition Courses Trained Thousands of Award-Winning Students?

1 One-Stop Professional System for Math Competitions

Think Competition follows the AMC syllabus and aligns with students' learning pace. **Grades 5–6 focus on AMC 8**, while **Grades 7–8 focus on AMC 10**. The curriculum covers the four core modules of math competitions — Algebra, Geometry, Number Theory, and Counting & Probability — enabling students to achieve one competition milestone each year and **complete AMC 10 preparation before high school, successfully qualifying for AIME**.

2 Expert Coaches. Top Results. Proven Success.

Think Competition courses are taught by **instructors with many years of competition teaching experience**, enabling students to master complex contest concepts efficiently and with ease.



James
Upenn - 5 YOE



Dennis
Duke - 4 YOE



Yichen
Columbia - 4 YOE

3 Collaborate and Excel with Outstanding Peers

Each year, the Competition Track begins with an entrance assessment to ensure students learn alongside peers of similar ability. This structure makes preparation more engaging and collaborative, as students motivate one another and grow together throughout the journey.

Course Highlights

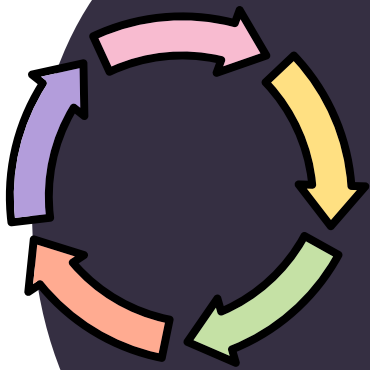
Clear Structure, Worry-Free for Parents

Personalized Learning Plans with Full Progress Tracking

- **Before Enrollment:** Teachers create **personalized study plans** based on each student's goals and ability
- **During Learning:** Teachers give **regular feedback and targeted advice**, helping parents track progress
- **Mid-Term & Final Evaluations:** **Parent meetings** and updated study plans ensure steady improvement



Weekly Learning Cycle to Ensure Steady Progress



- **Pre-Class Preparation:** **15-minute preview** to review key concepts and prepare for new lessons
- **Homework:** **Assigned after each class**, with teacher feedback shared with parents
- **Office Hour:** **Free live sessions** to review and clarify difficult problems
- **Homework Review Videos:** Each homework question includes a **detailed video explanation** for easy review

Year-Round Learning Support

- **Year-round Parent App service** providing fast responses
- Through the Parent App, parents get **direct contact with teachers** for efficient communication and real-time progress updates
- Instant online homework help for **timely learning support**

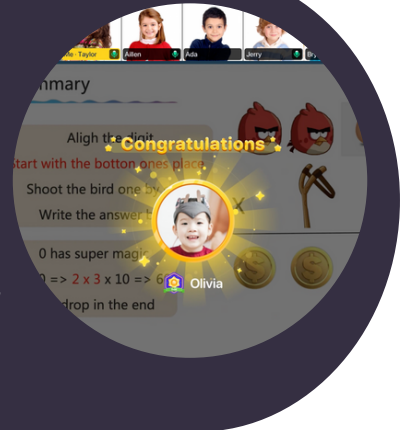


Course Highlights

Happy Learning, Better Results

Thoughtfully Crafted Lessons Inspire a Love for Math

- **Interactive games and scenario-based teaching** make math fun and engaging
- **Gold coin reward system** lets students exchange coins for prizes, motivating them to complete learning tasks actively



Self-Developed Learning App Enhances Every Online Class

- **Think Academy learning app** enhances in-class interaction with hand-raising, polls, and group activities —**keeping students engaged every three minutes**
- Teachers **track progress in real time** for an effective learning experience



A Sense of Achievement Builds Intrinsic Motivation

- Students learn efficiently in class and get **full after-class support** with detailed homework videos and free weekly Office Hours.
- Students **gain higher grades, faster progress**. They are naturally motivated to put more effort in STEM learning and become **confident math learners**



Topic 1: Addition and Subtraction of Fractions

(Recommended Learning Time: 4 days)

1 Calculate:

$$\frac{1}{2} + \frac{1}{3} = \underline{\hspace{2cm}}$$

The least common multiple of 2 and 3 is 6.

$$\frac{1}{2} = \frac{3}{6}$$

Diagram showing the conversion of $\frac{1}{2}$ to $\frac{3}{6}$. An orange arrow from 1 to 3 is labeled $\times 3$. Another orange arrow from 2 to 6 is labeled $\times 3$.

$$\frac{1}{3} = \frac{2}{6}$$

Diagram showing the conversion of $\frac{1}{3}$ to $\frac{2}{6}$. An orange arrow from 1 to 2 is labeled $\times 2$. Another orange arrow from 3 to 6 is labeled $\times 2$.

$$\frac{1}{2} + \frac{1}{3} = \frac{3}{6} + \frac{2}{6} = \frac{5}{6}$$



Find the least common multiple of two denominators. Write the unlike fractions as like fractions by finding the equivalent fractions. When adding the like fractions, keep the denominator unchanged and add the numerators together.

2 Calculate:

(1) $\frac{1}{2} + \frac{3}{5} = \underline{\hspace{2cm}}$.

(2) $\frac{1}{3} - \frac{1}{4} = \underline{\hspace{2cm}}$.

3 Calculate:

(1) $\frac{1}{3} + \frac{2}{9} = \underline{\hspace{2cm}}$.

(2) $\frac{1}{2} + \frac{3}{8} = \underline{\hspace{2cm}}$.

4 Calculate:

(1) $\frac{1}{3} + \frac{1}{9} = \underline{\hspace{2cm}}$.

(2) $\frac{1}{3} - \frac{1}{9} = \underline{\hspace{2cm}}$.

5 Calculate:

(1) $\frac{1}{3} + \frac{1}{4} = \underline{\hspace{2cm}}$.

(2) $\frac{4}{9} + \frac{1}{3} = \underline{\hspace{2cm}}$.

(3) $\frac{1}{6} + \frac{3}{8} = \underline{\hspace{2cm}}$.

(4) $\frac{5}{12} - \frac{1}{3} = \underline{\hspace{2cm}}$.

(5) $\frac{5}{6} - \frac{4}{5} = \underline{\hspace{2cm}}$.

(6) $\frac{5}{12} - \frac{1}{4} = \underline{\hspace{2cm}}$.

6 Calculate:

(1) $\frac{2}{9} + \frac{3}{7} = \underline{\hspace{2cm}}$.

(2) $\frac{4}{9} + \frac{1}{12} = \underline{\hspace{2cm}}$.

(3) $\frac{4}{7} + \frac{1}{6} = \underline{\hspace{2cm}}$.

(4) $\frac{1}{9} + \frac{3}{9} + \frac{3}{8} = \underline{\hspace{2cm}}$.

7 Calculate:

(1) $\frac{1}{9} + \frac{3}{8} = \underline{\hspace{2cm}}$.

(2) $\frac{5}{8} + \frac{1}{10} = \underline{\hspace{2cm}}$.

$$(3) \frac{4}{9} + \frac{3}{7} = \underline{\hspace{2cm}} .$$

$$(4) \frac{1}{12} + \frac{3}{9} + \frac{4}{9} = \underline{\hspace{2cm}} .$$

8 Calculate:

$$(1) \frac{1}{3} + \frac{1}{2} = \underline{\hspace{2cm}} .$$

$$(2) \frac{3}{7} + \frac{1}{2} = \underline{\hspace{2cm}} .$$

$$(3) \frac{3}{8} + \frac{3}{10} = \underline{\hspace{2cm}} .$$

$$(4) \frac{1}{10} + \frac{2}{5} + \frac{2}{7} = \underline{\hspace{2cm}} .$$

9 Calculate:

(1) $\frac{8}{9} - \frac{5}{6} = \underline{\hspace{2cm}}$.

(2) $\frac{1}{2} - \frac{5}{13} = \underline{\hspace{2cm}}$.

(3) $\frac{3}{8} - \frac{1}{9} = \underline{\hspace{2cm}}$.

(4) $\frac{4}{5} - \frac{1}{9} - \frac{2}{9} = \underline{\hspace{2cm}}$.

10 Calculate:

(1) $\frac{7}{9} - \frac{4}{7} = \underline{\hspace{2cm}}$.

(2) $\frac{5}{12} - \frac{1}{5} = \underline{\hspace{2cm}}$.

$$(3) \frac{7}{8} - \frac{1}{3} = \underline{\hspace{2cm}} .$$

$$(4) \frac{6}{7} - \frac{1}{9} - \frac{1}{3} = \underline{\hspace{2cm}} .$$

11 Calculate:

$$(1) \frac{7}{8} - \frac{5}{7} = \underline{\hspace{2cm}} .$$

$$(2) \frac{5}{6} - \frac{2}{5} = \underline{\hspace{2cm}} .$$

$$(3) \frac{5}{8} - \frac{1}{4} = \underline{\hspace{2cm}} .$$

$$(4) \frac{7}{9} - \frac{1}{9} - \frac{1}{8} = \underline{\hspace{2cm}} .$$

12 Calculate:

(1) $\frac{7}{9} - \frac{3}{7} = \underline{\hspace{2cm}}$.

(2) $\frac{8}{9} - \frac{1}{4} = \underline{\hspace{2cm}}$.

(3) $\frac{6}{7} - \frac{3}{5} = \underline{\hspace{2cm}}$.

(4) $\frac{7}{10} - \frac{1}{9} - \frac{2}{9} = \underline{\hspace{2cm}}$.

13 Calculate:

(1) $\frac{7}{8} - \frac{1}{6} = \underline{\hspace{2cm}}$.

(2) $\frac{3}{7} - \frac{1}{14} = \underline{\hspace{2cm}}$.

(3) $\frac{7}{9} - \frac{2}{7} = \underline{\hspace{2cm}}$.

(4) $\frac{9}{10} - \frac{1}{3} - \frac{2}{9} = \underline{\hspace{2cm}}$.

Topic 2: Remove the Parentheses

(Recommended Learning Time: 4 days)

1 Calculate:

(1) $23 + (57 - 19)$

$$\begin{aligned} & 23 \boxed{+} (57 - 19) \\ &= 23 + 57 \downarrow - 19 \\ &= 80 - 19 \\ &= 61 \end{aligned}$$

(2) $95 - (25 + 48)$

$$\begin{aligned} & 95 - (25 \boxed{+} 48) \\ &= 95 - 25 \downarrow - 48 \\ &= 70 - 48 \\ &= 22 \end{aligned}$$



When removing the parentheses, if the sign before the parentheses is a "+" sign, the sign inside parentheses will not change; if the sign before the parentheses is a "-" sign, the sign inside parentheses will change from "+" to "-" or "-" to "+".

2 Calculate:

(1) $17 + (13 + 29) = \underline{\hspace{2cm}}$.

$36 + (24 - 19) = \underline{\hspace{2cm}}$.

(2) $44 + (26 - 19) = \underline{\hspace{2cm}}$.

$46 + (14 + 18) = \underline{\hspace{2cm}}$.

(3) $447 + (33 + 15) = \underline{\hspace{2cm}}$.

$289 + (51 - 23) = \underline{\hspace{2cm}}$.

3 Calculate:

(1) $28 + (17 + 72) = \underline{\hspace{2cm}}$.

$12 + (16 + 48) = \underline{\hspace{2cm}}$.

(2) $16 + (44 + 78) = \underline{\hspace{2cm}}$.

$78 + (43 + 12) = \underline{\hspace{2cm}}$.

4 Calculate:

(1) $65 + (45 + 8) = \underline{\hspace{2cm}}$.

$38 + (62 + 9) = \underline{\hspace{2cm}}$.

$$(2) 25 + (58 + 25) = \underline{\hspace{2cm}} .$$

$$44 + (39 + 16) = \underline{\hspace{2cm}} .$$

5 Calculate:

$$(1) 78 - (38 + 24) = \underline{\hspace{2cm}} .$$

$$57 - (17 + 32) = \underline{\hspace{2cm}} .$$

$$(2) 63 - (13 + 9) = \underline{\hspace{2cm}} .$$

$$84 - (44 + 12) = \underline{\hspace{2cm}} .$$

(3) $94 - (44 + 23) = \underline{\hspace{2cm}}$.

$84 - (34 + 12) = \underline{\hspace{2cm}}$.

6

Calculate:

(1) $99 - (79 + 12) = \underline{\hspace{2cm}}$.

$88 - (48 + 23) = \underline{\hspace{2cm}}$.

(2) $96 - (36 + 55) = \underline{\hspace{2cm}}$.

$89 - (59 + 22) = \underline{\hspace{2cm}}$.

$$(3) 78 - (48 + 9) = \underline{\hspace{2cm}} .$$

$$84 - (44 + 15) = \underline{\hspace{2cm}} .$$

7 Calculate:

$$(1) 365 - (65 + 50) = \underline{\hspace{2cm}} .$$

$$241 - (68 + 41) = \underline{\hspace{2cm}} .$$

$$(2) 94 - (24 + 37) = \underline{\hspace{2cm}} .$$

$$83 - (16 + 13) = \underline{\hspace{2cm}} .$$

8 Calculate:

(1) $365 - (84 + 65) = \underline{\hspace{2cm}}$.

$223 - (69 + 23) = \underline{\hspace{2cm}}$.

(2) $132 - (64 + 32) = \underline{\hspace{2cm}}$.

$105 - (28 + 35) = \underline{\hspace{2cm}}$.

9 Calculate:

(1) $15 + (35 + 28) = \underline{\hspace{2cm}}$.

(2) $56 + (19 + 14) = \underline{\hspace{2cm}}$.

$$(3) 78 - (58 - 24) = \underline{\hspace{2cm}} .$$

$$(4) 68 - (18 + 14) = \underline{\hspace{2cm}} .$$

10 Calculate:

$$(1) 65 + (35 - 24) = \underline{\hspace{2cm}} .$$

$$57 - (37 - 13) = \underline{\hspace{2cm}} .$$

$$(2) 74 - (24 + 38) = \underline{\hspace{2cm}} .$$

$$28 + (32 - 16) = \underline{\hspace{2cm}} .$$

$$(3) 86 - (26 + 35) = \underline{\hspace{2cm}} .$$

$$37 + (53 - 15) = \underline{\hspace{2cm}}$$

11 Calculate:

$$(1) 68 - (18 + 33) = \underline{\hspace{2cm}} .$$

$$(2) 92 - (52 - 17) = \underline{\hspace{2cm}} .$$

$$(3) 6 + (44 - 27) = \underline{\hspace{2cm}} .$$

$$(4) 37 + (25 + 13) = \underline{\hspace{2cm}} .$$

12 Calculate:

(1) $34 + (16 - 8) = \underline{\hspace{2cm}}$.

$56 - (26 + 9) = \underline{\hspace{2cm}}$.

(2) $35 + (45 - 23) = \underline{\hspace{2cm}}$.

$52 - (14 + 22) = \underline{\hspace{2cm}}$.

(3) $64 + (37 + 16) = \underline{\hspace{2cm}}$.

$65 - (35 + 19) = \underline{\hspace{2cm}}$.

13 Calculate:

(1) $43 - (33 - 18) = \underline{\hspace{2cm}}$.

$74 - (34 + 12) = \underline{\hspace{2cm}}$.

(2) $96 - (16 + 48) = \underline{\hspace{2cm}}$.

$75 - (12 + 25) = \underline{\hspace{2cm}}$.

(3) $78 - (28 + 45) = \underline{\hspace{2cm}}$.

$85 - (33 - 15) = \underline{\hspace{2cm}}$.

Topic 3: Angle Measurement

(Recommended Learning Time: 4 days)

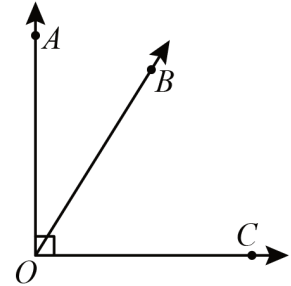
- 1 As the picture shown below, if $\angle AOB = 33^\circ$, what is the measure of $\angle BOC$?

$$\angle AOC = 90^\circ$$

$$\angle AOC = \angle AOB + \angle BOC$$

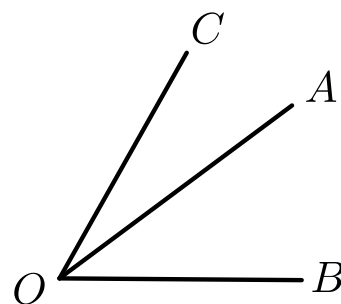
$$\angle BOC = \angle AOC - \angle AOB$$

$$\begin{aligned}\angle BOC &= 90^\circ - 33^\circ \\ &= 57^\circ\end{aligned}$$

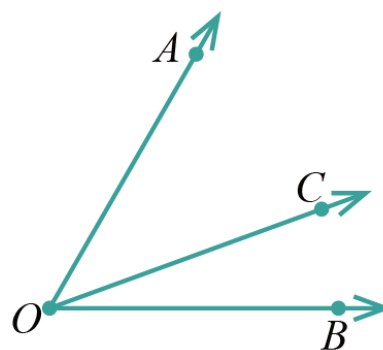


Find the special angles in the figure. For example: An right angle has a measure of 90° ; a straight angle has a measure of 180° . Use the relationship among the measure of angles in the figure to find the answer.

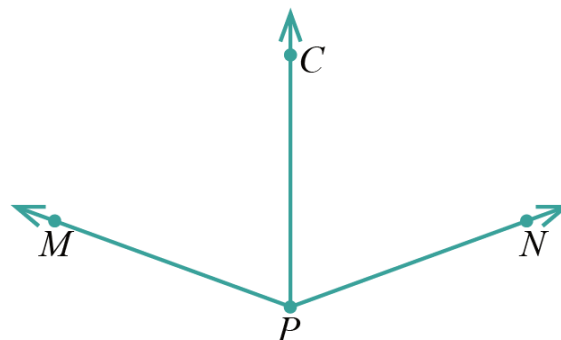
- 2 As shown below, if $\angle AOB = 29^\circ$, $\angle AOC = 21^\circ$, then $\angle BOC = \underline{\hspace{2cm}}$.



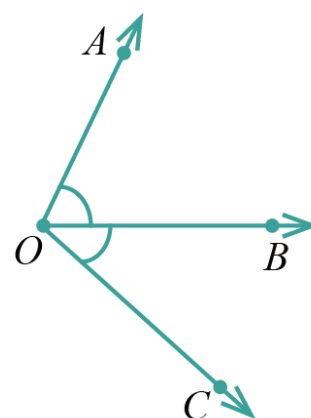
- 3 Given that the measure of $\angle AOB$ is 65° , and the measure of $\angle AOC$ is 40° , the measure of $\angle COB$ is $\underline{\hspace{2cm}}^\circ$.



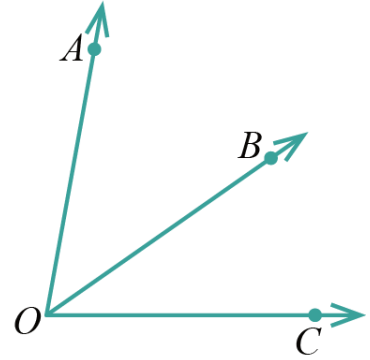
- 4 Given that $\angle MPC = \angle CPN = 67^\circ$, find the measure of $\angle MPN$.



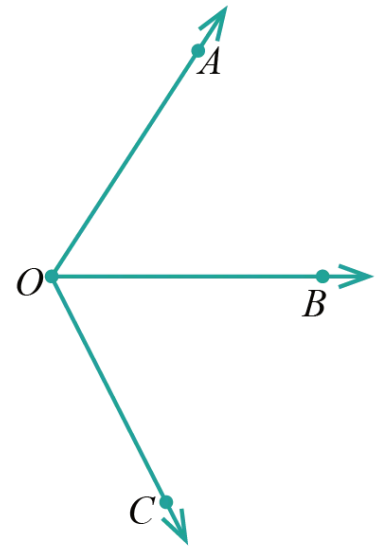
- 5 If the measure of $\angle AOB = 60^\circ$ and the measure of $\angle AOC = 105^\circ$, what is the measure of $\angle BOC$?



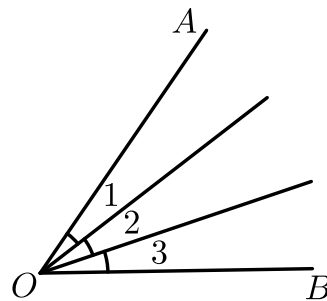
- 6 If the measure of $\angle AOC = 82^\circ$ and the measure of $\angle BOC = 37^\circ$, then the measure of $\angle AOB = \underline{\hspace{1cm}}^\circ$.



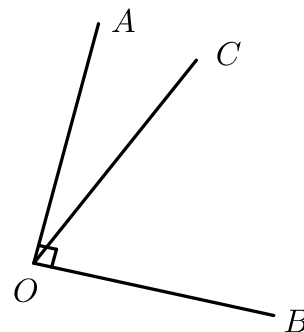
- 7 If the measure of $\angle AOC = 124^\circ$, and the measure of $\angle BOC = 62^\circ$, then the measure of $\angle AOB = \underline{\hspace{1cm}}^\circ$.



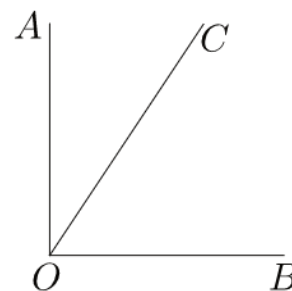
- 8 Given that $\angle 1 = \angle 2 = \angle 3 = 19^\circ$, what is the measure of $\angle AOB$?



- 9 Given that OA is perpendicular to OB , $\angle BOC$ is 62° , what is the measure of $\angle AOC$?

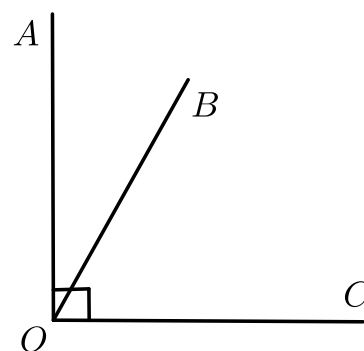


- 10 Given that $\angle AOC = 29^\circ$ and $\angle COB = 61^\circ$, what is the measure of $\angle AOB$?

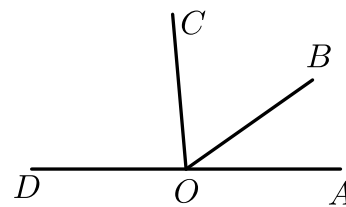


- A. 30° B. 60° C. 90° D. 120°

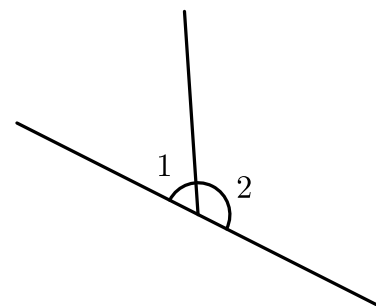
- 11 As shown below, if $\angle AOB = 32^\circ$, what is the measure of $\angle BOC$?



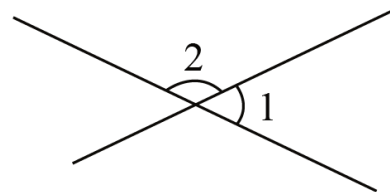
- 12 Given that $\angle AOB$ is 45° and $\angle BOC$ is 65° , what is the measure of $\angle COD$?



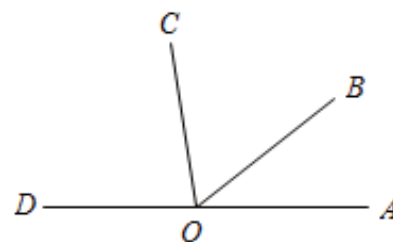
- 13 In the figure below, if $\angle 1 = 58^\circ$, what is the measure of $\angle 2$?



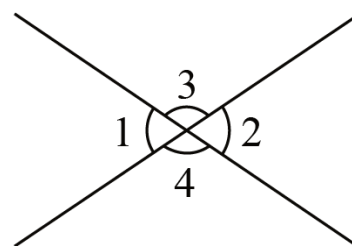
- 14 As shown below, two straight lines intersect and create 4 angles. If $\angle 1 = 45^\circ$, then $\angle 2 = \underline{\hspace{2cm}}$.



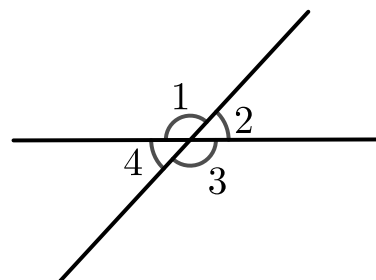
- 15 As shown in the figure below, O is a point on line AD . The measure of $\angle AOB$ is 35° and the measure of $\angle COB$ is 70° . What is the measure of $\angle COD$?



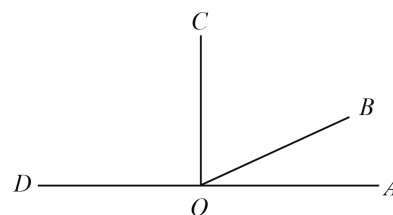
- 16 Two straight lines intersect and four angles are formed as shown. If $\angle 1 = 70^\circ$, what are the measures of $\angle 2$, $\angle 3$ and $\angle 4$, respectively?



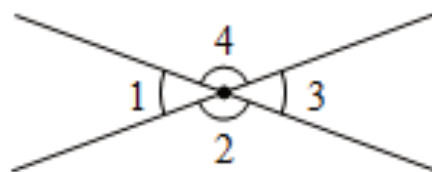
- 17 As shown in the figure below, the measure of $\angle 1$ is 120° . Find the measures of $\angle 2$, $\angle 3$, and $\angle 4$, respectively.



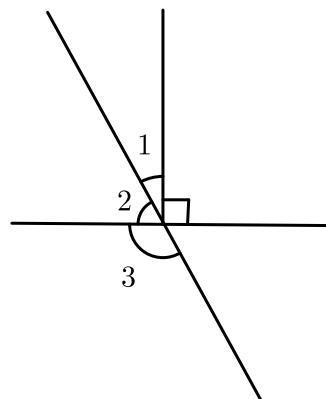
- 18 As shown in the figure below, O is a point on line AD . $\angle BOC$ is 60° . $\angle COD$ is 90° . Find the measure of $\angle AOB$.



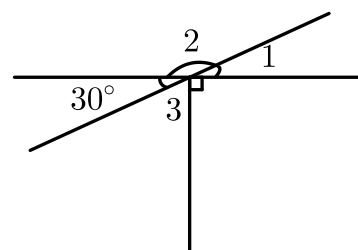
- 19 As shown in the figure below, the measure of $\angle 4$ is 135° . Find the measures of $\angle 1$, $\angle 2$, and $\angle 3$.



20 If $\angle 1 = 32^\circ$, then $\angle 2 = \underline{\hspace{2cm}}^\circ$, and $\angle 3 = \underline{\hspace{2cm}}^\circ$.



21 As shown in the figure below, $\angle 1 = \underline{\hspace{2cm}}^\circ$, $\angle 2 = \underline{\hspace{2cm}}^\circ$, $\angle 3 = \underline{\hspace{2cm}}^\circ$.



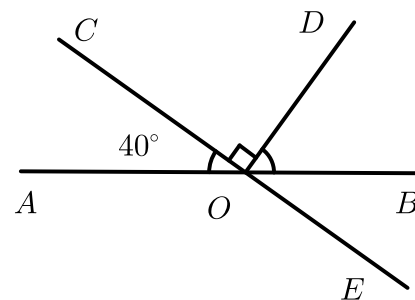
22 As shown in the figure below, $\angle AOC = 40^\circ$.

$\angle COD =$ _____ $^\circ$, and it is a(n) _____ angle;

$\angle BOD =$ _____ $^\circ$, and it is a(n) _____ angle;

$\angle AOB =$ _____ $^\circ$, and it is a(n) _____ angle;

$\angle AOE =$ _____ $^\circ$, and it is a(n) _____ angle.



Topic 4: Speed, Time, and Distance

(Recommended Learning Time: 4 days)

- 1 Peter, Irene, and Nina talk about how they get to Think Academy from home.
(1) Peter says: "I walk to Think Academy every day. It takes me 8 minutes." Given that Peter's walking speed is 40 meters per minute, then Peter's home is _____ meters away from Think Academy.

$$\begin{aligned}\text{Distance} &= \text{Time} \times \text{Speed} \\ &= 8 \times 40 \\ &= 320 \text{ m}\end{aligned}$$



Distance = Time $\times$ speed

If we want to find the distance, we need to find the time and speed in the question.

(2) Irene says: "I drive to Think Academy every day." Given that Irene's home is 900 meters away from Think Academy, and Irene's driving speed is 300 meters per minute, then it takes Irene _____ minute(s) to get to Think Academy from home.

$$\begin{aligned}\text{Time} &= \text{Distance} \div \text{Speed} \\ &= 900 \div 300 \\ &= 3 \text{ min}\end{aligned}$$



Time = Distance $\div$ Speed

If we want to find the time, we need to find the distance and time in the question.

(3) Nina says: "I take a bus to Think Academy every day. It takes me 2 hours." Given that Nina's home is 70 kilometers away from Think Academy, then the speed of the bus Nina takes is _____ kilometers per hour.

$$\begin{aligned}\text{Speed} &= \text{Distance} \div \text{Time} \\ &= 70 \div 2 \\ &= 35 \text{ km/h}\end{aligned}$$



Speed = Distance $\div$ Time

If we want to find the speed, we need to find the distance and time in the question.

2 Elena, Tom, and Jimmy talk about how they get to Think Academy from home.
(1) Elena says: "I walk to Think Academy every day. It takes me 20 minutes." Given that Elena's walking speed is 70 meters per minute, then Elena's home is _____ meters away from Think Academy.

(2) Tom says: "I take a taxi to Think Academy every day." Given that Tom's home is 2400 meters away from Think Academy, and the driver's driving speed is 400 meters per minute, then it takes Tom _____ minute(s) to get to Think Academy from home.

(3) Jimmy says: "I ride a bike to Think Academy every day. It takes me 3 hours." Given that Jimmy's home is 30 kilometers away from Think Academy, Jimmy's biking speed is _____ kilometers per hour.

- 3 Cassie, Maddy, and Nathan talk about how they get to school from home.
- (1) Cassie says: "I walk to school every day. It takes me 10 minutes." Given that Cassie's walking speed is 65 meters per minute, then Cassie's home is _____ meters away from school.
- (2) Maddy says: "My dad drive me to school every day." Given that Maddy's home is 1200 meters away from school, and the her father's driving speed is 400 meters per minute, then it takes Maddy _____ minute(s) to get to school from home.
- (3) Nathan says: "I ride a bike to school every day. It takes me 5 hours." Given that Nathan's home is 45 kilometers away from school, Nathan's biking speed is _____ kilometers per hour.

4 Alex walks to school at a constant speed of 20 m/min.

(1) How far can he walk in 3 min?

(2) How long does it take him to walk 100 m?

(3) If Alex's home is 200 m away from school and it takes Alex 4 min to walk home from school, what is Alex's speed?

- 5 Dylan was biking at a constant speed of 15 km/h.
- (1) In the first 2 h, how far did he bike in kilometers?

(2) Then he biked another 60 km. How long did it take?

6 A and B are 230 km apart. It takes Eddie 5 h to drive from A to B . And it takes him another 4 h to drive from B to C . Assume his speed is unchanged. Find the distance between B and C .

7 It takes Ryan 2 h to bike to school from home at a constant speed of 15 km/h. If he starts biking home from school at a constant speed of 10 km/h, how long does it take him to arrive home?

- 8 It takes Elena 3 h to bike from home to school at a constant speed of 20 km/h. If she bikes home from school at a constant speed of 15 km/h, it will take _____ h.
- A. 4 B. 5 C. 6 D. 3

- 9 Alex travels 48 km in 2 h by motorcycle. And he travels 60 km/h by car. He travels _____ more km per hour by car than by motorcycle. And he can drive _____ more km by car than by motorcycle in 5 h.
- A. 36; 180 B. 36; 97 C. 20; 97 D. 20; 180

10 Lisa is running to her school which is 1500 meters away from her home. If her running speed is 150 meters per minute, she can exactly be at her school on time. However, her current running speed is 100 meters per minute. Therefore, within the scheduled time, she can run _____ meters.

11 Alex practices for a 5000-meter race to prepare for Think Olympics. If his running speed is 250 meters per minute, he can exactly finish the full distance in his scheduled time. However, his current running speed is 200 meters per minute. Therefore, within the scheduled time, he can run _____ meters.

12 Crystal practices for a 8500-meter race to prepare for Think Olympics. If her running speed is 170 meters per minute, she can exactly finish the full distance in her scheduled time. However, her current running speed is 70 meters per minute. Therefore, within the scheduled time, she can run _____ meters.

13 Olivia practices for a 4800-meter race to prepare for Think Olympics. If her running speed is 120 meters per minute, she can exactly finish the full distance in her scheduled time. However, her current running speed is 140 meters per minute. Therefore, within the scheduled time, she can run _____ meters.

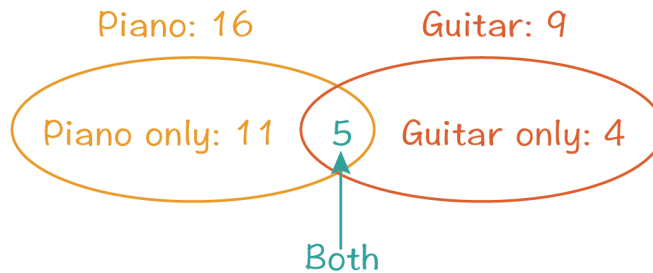
14 Normally, Lily's running speed is 150 meters per minute and she can arrive at her school within 30 minutes. However, she was injured once. On that day, she was late and she used 45 minutes to arrive at her school. Therefore, her school is _____ meters away from her home and her speed is _____ meters per minute after getting injured.

15 Tom practices for a 7200-meter race to prepare for Think Olympics. If his running speed is 180 meters per minute, he can exactly finish the full distance in his scheduled time. However, his current running speed is 200 meters per minute. Therefore, within the scheduled time, he can run _____ meters.

Topic 5: Inclusion and Exclusion

(Recommended Learning Time: 5 days)

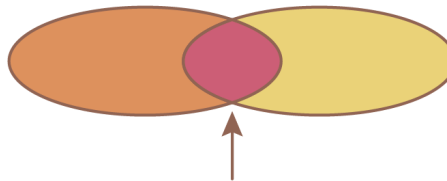
- 1 All students in a music club can play either the piano or the guitar, or play both. Among them, 16 students can play the piano, 9 students can play the guitar, and 5 students can play both. The number of students in this club is _____ .



$$\text{Method 1: } 11 + 5 + 4 = \boxed{20}$$

$$\text{Method 2: } 16 + 9 - 5 = \boxed{20}$$

Use Venn diagram to help you! Put the numbers in each part of the diagram. We have two methods to find the total.



Method 1: Total # = Group A Only + Group B Only + Both

Method 2: Total # = # of Group A + # of Group B - Overlapping



2 All students in a class can either play basketball or football, or play both. Among them, 25 students can play basketball, 13 students can play football, and 9 students can play both. Find the number of students in this class.

3 All students in a class can either play the guitar or the piano, or play both. Among them, 34 students can play the guitar, 17 students can play the piano, and 11 students can play both. Find the number of students in this class.

4 All students in a class can either read English or Chinese, or read both. Among them, 18 students can read English, 15 students can read Chinese, and 7 students can read both. Find the number of students in this class.

5 Lucy's mother is a member of a gym. Each day she either played tennis or swam, or did both. This month, she played tennis for 10 times and swam for 12 times. On three of those days, she did both of the two sports. So Lucy's mom went to the gym for _____ times this month. (Lucy's mother did not do the same sport more than once a day.)

6 The 3rd grade students are choosing optional course. All students can either take math or geography, or take both. Among them, 19 students take math, 21 students take geography, and 5 students take both. The number of students in grade three is _____ .

7 One question has two choices, students who answered it either chose *A* or chose *B*, or chose both. Among them, 10 students chose *A*, 24 students chose *B*, and 8 students chose both *A* and *B*. How many students answered the question?

8 All students in a sports club can either swim or play basketball, or do both. Among them, 20 students can swim, 25 students can play basketball, and 10 of them can do both. There are _____ students in this club.

9 There are 30 students in the biology club. On summer vacation, students in this club either made plant specimen or insect specimen, or both. We know that there are 21 students making plant specimen, and 16 students making insect specimen. How many students make both?

10 Students in the musical instrument club can either play the violin or play the piano, or play both. We know that 24 students can play the violin, 17 students can play the piano, and 8 students can play both. How many students are there in this instrument club?

11 There are 32 students in the swimming club. Among them, 25 students can do backstroke, 17 students can do freestyle, and 2 students can do neither. How many students in this club can do both?

12 There lived 50 rabbits in the forest. 10 of those rabbits like eating carrots only, 12 rabbits like both carrots and cabbages, and 3 rabbits like neither of the two vegetables. There are _____ rabbits which like cabbages only.

13 A group of 40 students go to the supermarket to prepare for their picnic. 11 students pick only snacks, 12 people pick both snacks and drinks, and 9 students pick neither snacks or drinks. Find the number of students who pick only drinks.

Topic 1: Addition and Subtraction of Fractions

(Recommended Learning Time: 4 days)

1. N/A
2. $\frac{11}{10}$ Alternative 1 $\frac{1}{10}$; $\frac{1}{12}$
3. $\frac{5}{9}$; $\frac{7}{8}$
4. $\frac{4}{9}$; $\frac{2}{9}$
5. (1) $\frac{7}{12}$
(2) $\frac{7}{9}$
(3) $\frac{13}{24}$
(4) $\frac{1}{12}$
(5) $\frac{1}{30}$
(6) $\frac{1}{6}$
6. $\frac{41}{63}$; $\frac{19}{36}$; $\frac{31}{42}$; $\frac{59}{72}$
7. $\frac{35}{72}$; $\frac{29}{40}$; $\frac{55}{63}$; $\frac{31}{36}$
8. $\frac{5}{6}$; $\frac{13}{14}$; $\frac{27}{40}$; $\frac{11}{14}$
9. $\frac{1}{18}$; $\frac{3}{26}$; $\frac{19}{72}$; $\frac{7}{15}$
10. $\frac{13}{63}$; $\frac{13}{60}$; $\frac{13}{24}$; $\frac{26}{63}$
11. $\frac{9}{56}$; $\frac{13}{30}$; $\frac{3}{8}$; $\frac{13}{24}$
12. $\frac{22}{63}$; $\frac{23}{36}$; $\frac{9}{35}$; $\frac{11}{30}$
13. $\frac{17}{24}$; $\frac{5}{14}$; $\frac{31}{63}$; $\frac{31}{90}$

Topic 2: Remove the Parentheses

(Recommended Learning Time: 4 days)

1. N/A
2. (1) 59; 41
(2) 51; 78
(3) 495; 317
3. (1) 117; 76
(2) 138; 133
4. (1) 118; 109
(2) 108; 99
5. (1) 16 ; 8
(2) 41 ; 28
(3) 27 ; 38
6. (1) 8 ; 17
(2) 5 ; 18
(3) 21 ; 25
7. (1) 250; 132
(2) 33; 54
8. (1) 216; 131
(2) 36; 42
9. (1) 78
(2) 89
(3) 44
(4) 36
10. (1) 76 ; 33
(2) 12 ; 44
(3) 25 ; 75
11. (1) 17
(2) 57
(3) 23
(4) 75
12. (1) 42 ; 21
(2) 57 ; 16
(3) 117 ; 11

13. (1) 28 ; 28
(2) 32 ; 38
(3) 5 ; 67

Topic 3: Angle Measurement

(Recommended Learning Time: 4 days)

1. N/A
2. 50°
3. 25
4. 134°
5. 45°
6. 45
7. 62
8. 57°
9. 28°
10. C
11. 58°
12. 70°
13. 122°
14. 135°
15. $\angle COD = 75^\circ$
16. $\angle 2 = \angle 1 = 70^\circ$, $\angle 3 = \angle 4 = 110^\circ$
17. $\angle 2 = 60^\circ$; $\angle 3 = 120^\circ$; $\angle 4 = 60^\circ$
18. 30°
19. $\angle 1 = 45^\circ$; $\angle 2 = 135^\circ$; $\angle 3 = 45^\circ$
20. 58 ; 122
21. 30; 150; 60
22. 90 ; right ; 50 ; acute ; 180 ; flat ; 140 ; obtuse

Topic 4: Speed, Time, and Distance

(Recommended Learning Time: 4 days)

1. (1) N/A
(2) N/A
(3) N/A
2. (1) 1400
(2) 6
(3) 10
3. (1) 650
(2) 3
(3) 9
4. (1) 60 m
(2) $100 \div 20 = 5$ min
(3) 50 m/min
5. (1) 30 km
(2) 4 h
6. 184 km
7. 3 h
8. A
9. A
10. 1000
11. 4000
12. 3500
13. 5600
14. 4500 ; 100
15. 8000

Topic 5: Inclusion and Exclusion

(Recommended Learning Time: 5 days)

1. N/A
2. 29
3. 40
4. 26
5. 19
6. 35
7. 26
8. 35
9. 7
10. 33
11. 12
12. 25
13. 8



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