



Keep → Thinking





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学而思美国ONLINE

小高数学课程体系

Think Academy 小学长期班体系专为K至5年级学生设计，提供专业、系统、全面的全年数学课程，结合北美学生的学习特点与需求，分为**校内**和**竞赛**两大体系，其中

- **校内体系**会根据孩子的数学进度、学习能力划分为：
 - Core+：校内同步，夯实基础，稳步提升
 - Honors：校内超前1年，稳固全A，直通快班
 - Challenge：校内超前1.5-2年，AP满贯，适当拓展

校内体系超前Common Core 1-2 年，对标私校升学考试(MAP、iSEE、SSAT)和公校期中期末考和公校天才班/分班测 (STAR Math、iReady、IOWA, SBA等)，确保学生在校内稳固领先。

- **竞赛体系**会根据孩子的思维灵活度、新知识点接受度分为：
 - ACE：竞赛奠基，深度拓展，助力5年级AMC8 AR奖项
 - ACE+：竞赛集训队，晋级奥赛，专业数学竞赛路径

竞赛体系则系统覆盖 Math Kangaroo (适合1-4年级)、AMC 8 (适合4-8年级) 等权威数学竞赛核心知识点，帮助学生全面提升数学思维与竞赛能力，助力校内学习与数学竞赛的双向突破，实现长期领先！

不同班层的开设可以确保不同程度的学生都能找到适合的学习路径。所有班层内容都囊括小学数学七大模块 (计算、几何、数论、应用、计数与概率、代数、组合)，但**进度和深度不同**。

	小学									初中		
年级	G3			G4			G5			G6		
学期	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	

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中学竞赛体系学员成绩

2022-2024 AMC8累计获奖学员人数:



Achievement Roll
(低年级成就奖)



Honor Roll
(全国Top 5%)



DHR
(全国Top 1%)

2022-2024 AMC10累计获奖学员人数:



AIME晋级
(全国Top 7%)



Honor Roll
(全国Top 5%)



DHR
(全国Top 1%)

2024 Think全球IMO获奖人数

7金 1银

金牌总数居全球第一



International Mathematical Olympiad
Foundation Bronze Sponsor

Think Academy是国际数学奥林匹克
竞赛官方合作伙伴

Think竞赛课程为什么能培养上千位获奖学员?

1 专业竞赛体系，一站式解决竞赛学习

Think Competition根据美国数学竞赛AMC的考纲设计，贴合学生的考试节奏，在**5-6年级学习AMC8**，**7-8年级学习AMC10**，知识点涵盖竞赛的四大模块：代数，数论，数论，和计数概率，从而每年实现一个竞赛目标，最终帮助中学生在**进入高中前完成AMC10的学习，顺利晋级AIME。**

优秀竞赛师资，为好成绩保驾护航

Think Competition课程均由**多年竞赛授课经验**的老师授课，让孩子可以更高效且轻松的掌握复杂竞赛知识点。



James老师

宾大-5年竞赛教龄



Dennis老师

杜克大学-4年竞赛教龄



Yichen老师

哥大-4年竞赛教龄

3 和优秀的同龄人一起学习，共同进步

竞赛体系每年的课程均设置入学考试，确保每位学生可以和水平相近的同龄人一起学习，让竞赛备考不再孤单，孩子们可以互相激励，共同进步。

课程亮点

家长省心，规划清晰

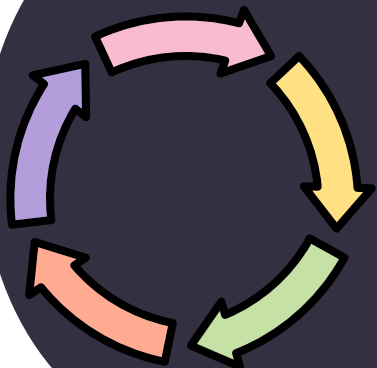
授课老师为孩子定制学习规划， 全程跟踪学习进度

- 报名课程：学习规划老师针对孩子的学习能力与目标，**制定个性化学习方案**。
- 上课期间：每月和家长**反馈孩子的学习情况**，提供有针对性的学习建议，并**监督落实孩子的提升方案**。
- 期中/期末：每学期组织**家长会**，梳理孩子的学习优势和薄弱环节，并制定新学期的学习规划。



每周学习闭环，保障学习效果

- 课前预习：15分钟**课前预习题**，温故而知新
- 课后作业：每节课**配套作业**题目，老师主动和家长反馈学生的作业完成情况。
- Office Hour: **免费作业讲解直播课**，解答孩子课后不明白的题目与知识点。
- 作业解析：每道作业配套**讲解视频**，随时复习错题



全年学习服务支持

- 专业客服，**全年 364 天 Parent APP 在线支持**，快速响应任何问题
- Parents App**直接和授课老师联系**，沟通更高效，随时掌握孩子的学情表现。
- 在线作业答疑，给孩子**最及时的学习帮助**

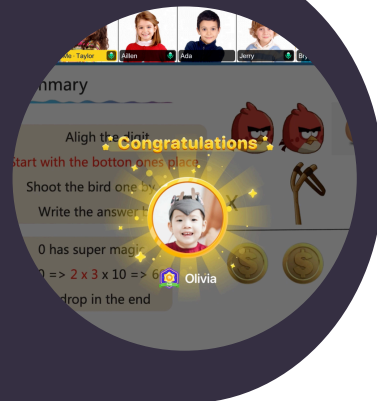


课程亮点

孩子开心，学习更高效

精心打磨课堂设计，让孩子爱上数学

- **互动游戏+情景化教学**，让数学课堂不再枯燥
- **金币激励**，孩子可以用金币兑换实体或虚拟奖品，给孩子更及时的正反馈，让孩子更主动地完成学习任务和目标。



自研上课App，强化线上课程体验



- Think Academy**自主研发的上课App**，给孩子带来更丰富的课上互动，包括举手上台，投票作答，选择填空，集体讨论等互动形式，保障**每3分钟一次互动**的频率，提升孩子的上课投入。
- 老师**实时观察每位孩子**的上课情况，保障孩子的学习体验与效果。

成就感带来底层学习动力

- 不仅课上学习高效，课后也有**完善的辅导答疑服务**。课后作业有视频解析，每周还有免费office hour解答孩子的问题，保障每节课都能学懂。
- 孩子在校内达到**成绩和进度双领先**。更愿意投入时间和精力在理科学习上，增强孩子的学习动力，自推成为**理科学霸**。



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)

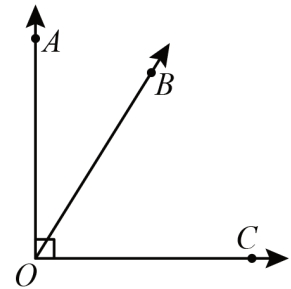
- 1 As the picture shown below, if $\angle AOB = 33^\circ$, what is the measure of $\angle BOC$?

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

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

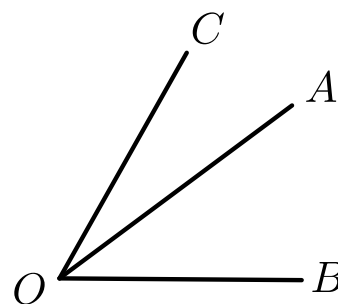
$$\angle BOC = \angle AOC - \angle AOB$$

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

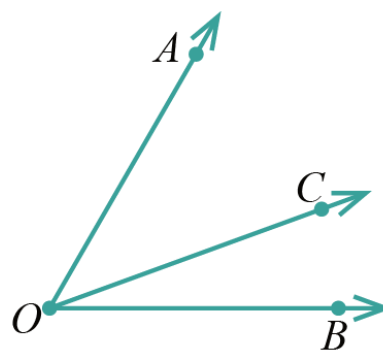


Find the special angles in the figure. For example: An right angle has a measure of 90° ; a straight angle has a measure of 180° . Use the relationship among the measure of angles in the figure to find the answer.

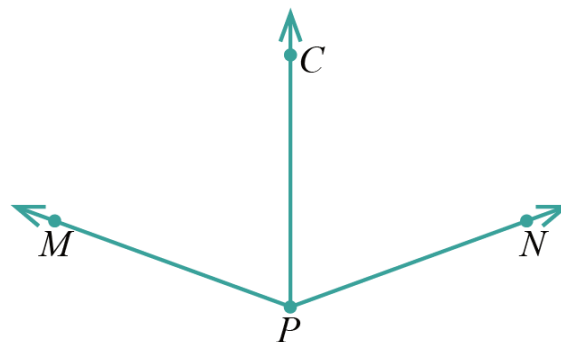
- 2 As shown below, if $\angle AOB = 29^\circ$, $\angle AOC = 21^\circ$, then $\angle BOC = \underline{\hspace{2cm}}$.



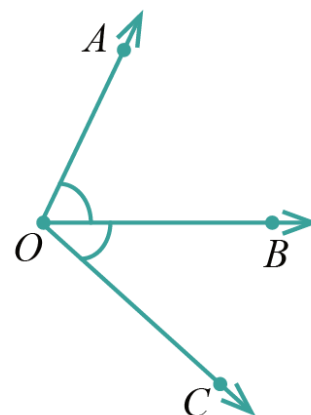
- 3 Given that the measure of $\angle AOB$ is 65° , and the measure of $\angle AOC$ is 40° , the measure of $\angle COB$ is $\underline{\hspace{2cm}}^\circ$.



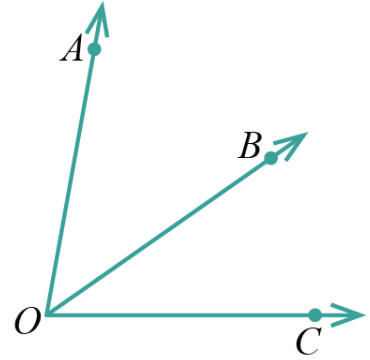
- 4 Given that $\angle MPC = \angle CPN = 67^\circ$, find the measure of $\angle MPN$.



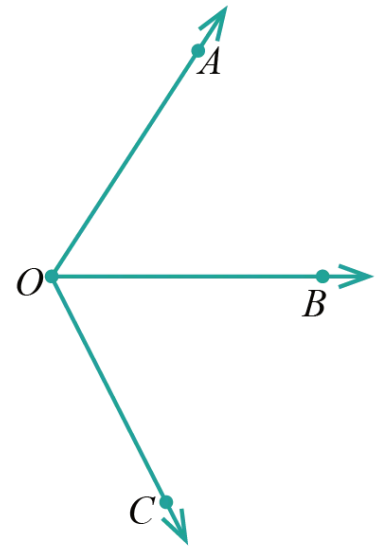
- 5 If the measure of $\angle AOB = 60^\circ$ and the measure of $\angle AOC = 105^\circ$, what is the measure of $\angle BOC$?



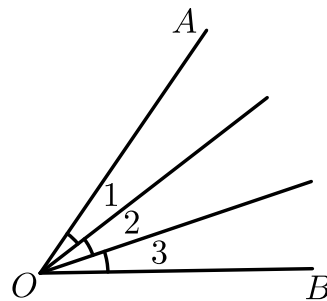
- 6 If the measure of $\angle AOC = 82^\circ$ and the measure of $\angle BOC = 37^\circ$, then the measure of $\angle AOB = \underline{\hspace{1cm}}^\circ$.



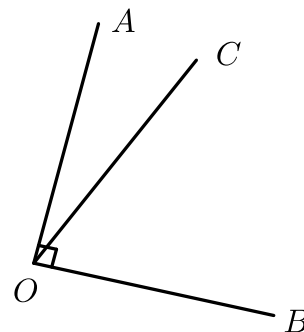
- 7 If the measure of $\angle AOC = 124^\circ$, and the measure of $\angle BOC = 62^\circ$, then the measure of $\angle AOB = \underline{\hspace{1cm}}^\circ$.



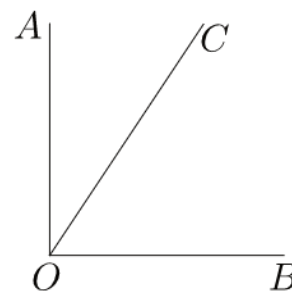
- 8 Given that $\angle 1 = \angle 2 = \angle 3 = 19^\circ$, what is the measure of $\angle AOB$?



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

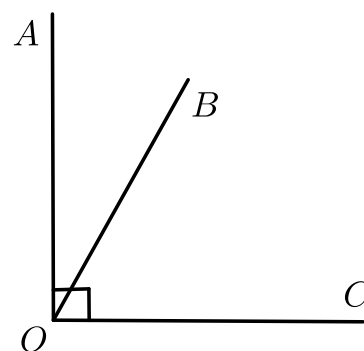


- 10 Given that $\angle AOC = 29^\circ$ and $\angle COB = 61^\circ$, what is the measure of $\angle AOB$?

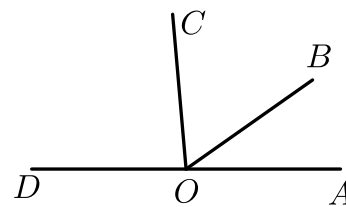


- A. 30° B. 60° C. 90° D. 120°

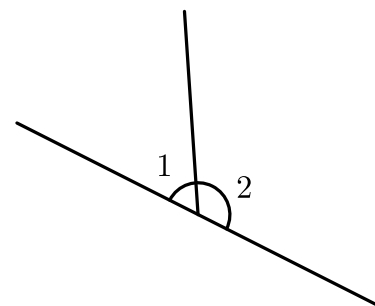
- 11 As shown below, if $\angle AOB = 32^\circ$, what is the measure of $\angle BOC$?



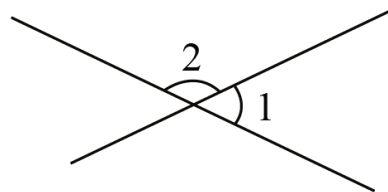
- 12 Given that $\angle AOB$ is 45° and $\angle BOC$ is 65° , what is the measure of $\angle COD$?



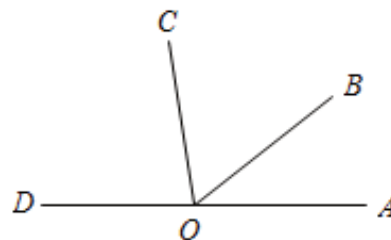
- 13 In the figure below, if $\angle 1 = 58^\circ$, what is the measure of $\angle 2$?



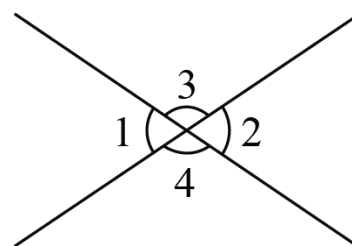
- 14 As shown below, two straight lines intersect and create 4 angles. If $\angle 1 = 45^\circ$, then $\angle 2 = \underline{\hspace{2cm}}$.



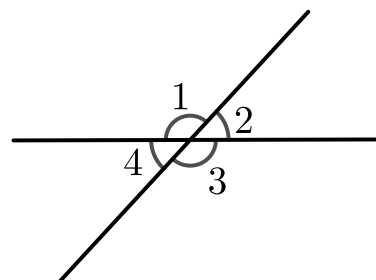
- 15 As shown in the figure below, O is a point on line AD . The measure of $\angle AOB$ is 35° and the measure of $\angle COB$ is 70° . What is the measure of $\angle COD$?



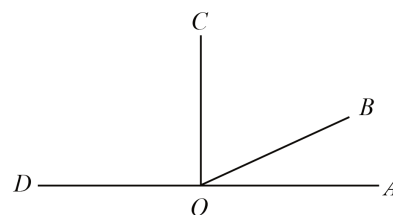
- 16 Two straight lines intersect and four angles are formed as shown. If $\angle 1 = 70^\circ$, what are the measures of $\angle 2$, $\angle 3$ and $\angle 4$, respectively?



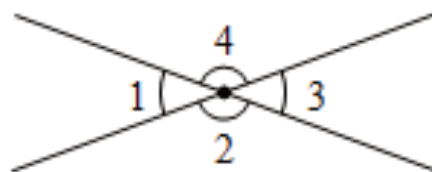
- 17 As shown in the figure below, the measure of $\angle 1$ is 120° . Find the measures of $\angle 2$, $\angle 3$, and $\angle 4$, respectively.



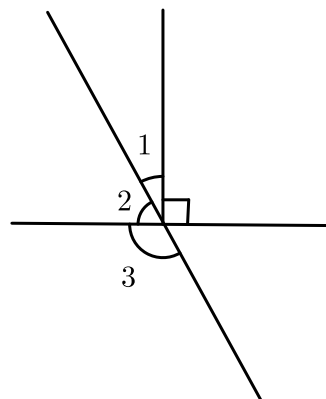
- 18 As shown in the figure below, O is a point on line AD . $\angle BOC$ is 60° . $\angle COD$ is 90° . Find the measure of $\angle AOB$.



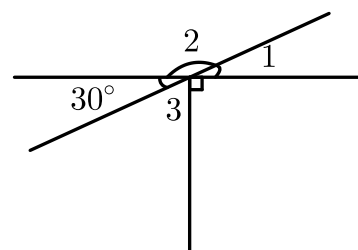
- 19 As shown in the figure below, the measure of $\angle 4$ is 135° . Find the measures of $\angle 1$, $\angle 2$, and $\angle 3$.



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, $\angle 1 = \underline{\hspace{2cm}}^\circ$, $\angle 2 = \underline{\hspace{2cm}}^\circ$, $\angle 3 = \underline{\hspace{2cm}}^\circ$.



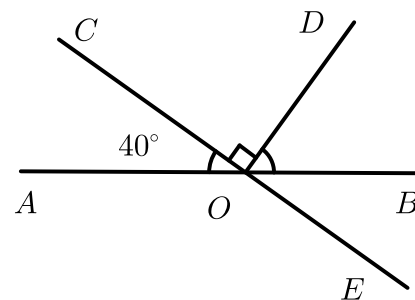
22 As shown in the figure below, $\angle AOC = 40^\circ$.

$\angle COD =$ _____ $^\circ$, 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.

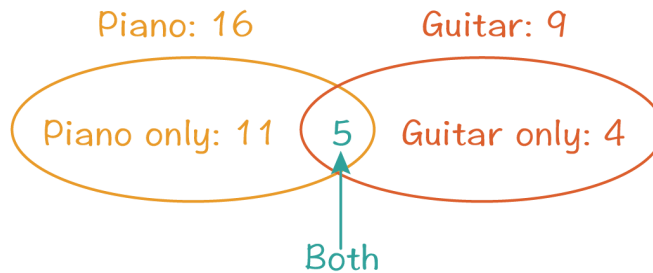
14 Normally, Lily's running speed is 150 meters per minute and she can arrive at her school within 30 minutes. However, she was injured once. On that day, she was late and she used 45 minutes to arrive at her school. Therefore, her school is _____ meters away from her home and her speed is _____ meters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

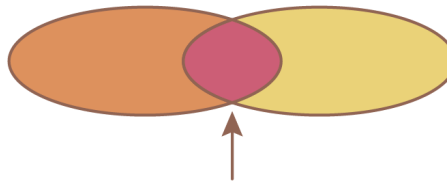
- 1 All students in a music club can play either the piano or the guitar, or play both. Among them, 16 students can play the piano, 9 students can play the guitar, and 5 students can play both. The number of students in this club is _____ .



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

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

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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