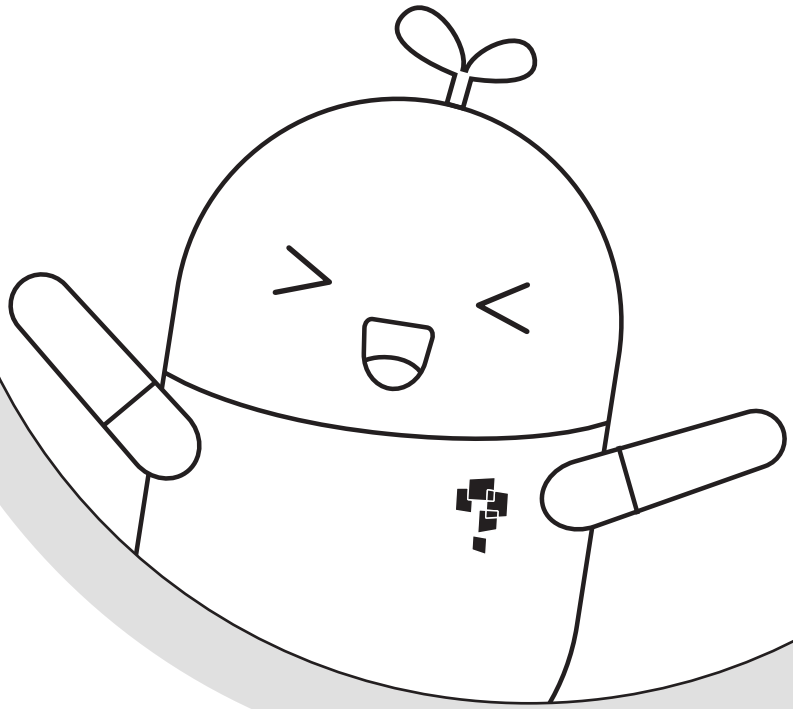
Answers



Think Academy

Basic Math

Think Academy

G4 [B1] Number & Operations

Addition and Subtraction of Whole Numbers

1 (1) **8317**

(2) **5633**

2 (1) **817**

(2) **1334**

3 (1) **1606**

(2) **827**

4 (1) **3475**

(2) **1503**

5 (1) **4615**

(2) **9507**

6 (1) **6154**

(2) **2402**

7 (1) **3326**

(2) **3986**

8 (1) **6304**

(2) **4908**

9 (1) 592

(2) 3442

Addition and Subtraction of Fractions and Decimals

1 $\frac{1}{4}$

Alternative: $\frac{25}{100}$

2 (1) $\frac{9}{13}$

(2) 1

(3) $\frac{3}{13}$

(4) $\frac{2}{19}$

3 $\frac{31}{110}$; $\frac{2}{5}$

$\frac{3}{8}$; $\frac{7}{15}$

$\frac{1}{4}$; $\frac{3}{8}$

$\frac{2}{3}$; $\frac{3}{20}$

4 $\frac{15}{14}$; $\frac{2}{5}$

$\frac{11}{30}$; $\frac{1}{12}$

$\frac{11}{56}$; $\frac{9}{28}$

$\frac{5}{12}$; $\frac{47}{60}$

5 (1) $\frac{13}{20}$

(2) $\frac{16}{25}$

(3) $\frac{7}{25}$

6 1:$10\frac{4}{5}$
2:$\frac{52}{7}$

7 1:$\frac{58}{21}$
Alternative:$2\frac{16}{21}$
2:$\frac{23}{6}$
Alternative:$3\frac{5}{6}$

8 $\frac{15}{14}$: $\frac{2}{5}$
$\frac{11}{30}$: $\frac{1}{12}$
$\frac{11}{56}$: $\frac{9}{28}$
$\frac{5}{12}$: $\frac{47}{60}$

9 (1) 91.73
(2) 2.51

Addition and Subtraction of Mixed Numbers

1 (1) $3\frac{1}{3}$
(2) $7\frac{25}{63}$
(3) 10
(4) $5\frac{5}{24}$

2 (1) $5\frac{3}{7}$
(2) $5\frac{7}{12}$
(3) 7
(4) $6\frac{4}{15}$

3 (1) $11\frac{2}{11}$
(2) $8\frac{7}{12}$
(3) 8
(4) $12\frac{1}{8}$

4 (1) $2\frac{2}{7}$
(2) $2\frac{11}{21}$
(3) $1\frac{2}{3}$
(4) $4\frac{13}{15}$

5 (1) $4\frac{1}{9}$
(2) $4\frac{5}{8}$
(3) $1\frac{4}{7}$
(4) $5\frac{17}{21}$

6 (1) $1\frac{2}{7}$
(2) $1\frac{39}{40}$
(3) $1\frac{6}{11}$
(4) $1\frac{11}{18}$

7 (1) $2\frac{1}{2}$
(2) $5\frac{5}{8}$
(3) $6\frac{1}{3}$
(4) $1\frac{11}{14}$

8 $2\frac{5}{7}$

Alternative: $\frac{19}{7}$

9 (1) $6\frac{2}{13}$

(2) $4\frac{11}{30}$

(3) 6

(4) $12\frac{3}{8}$

Multiplication and Division of Fractions

1 (1) $\frac{1}{10}$

(2) $\frac{1}{30}$

(3) $\frac{1}{10}$

(4) $\frac{5}{24}$

(5) $\frac{8}{33}$

(6) $\frac{2}{169}$

2 1: $\frac{8}{5}$

2: $\frac{10}{3}$

3: $\frac{31}{2}$

4: $\frac{67}{12}$

5: $\frac{21}{8}$

6: $\frac{83}{10}$

3 (1) $\frac{5}{12}$

(2) $\frac{77}{20}$

Alternative: $3\frac{17}{20}$

4 (1) $\frac{1}{9}$

(2) $\frac{1}{88}$

(3) $\frac{7}{26}$

(4) $\frac{1}{45}$

(5) $\frac{5}{208}$

(6) $\frac{5}{24}$

5 1: $\frac{4}{45}$

2: $\frac{8}{21}$

3: $\frac{21}{44}$

4: $\frac{3}{32}$

6 1: $\frac{9}{5}$

2: $\frac{12}{11}$

3: $\frac{65}{6}$

4: $\frac{20}{21}$

5: $\frac{17}{8}$

6: $\frac{18}{25}$

7 1: $\frac{8}{3}$

2: $\frac{10}{9}$

3: $\frac{7}{5}$

4: $\frac{12}{13}$

5: $\frac{15}{4}$

6: $\frac{24}{17}$

8 1: $\frac{5}{77}$

2: $\frac{2}{45}$
3: $\frac{24}{65}$
4: $\frac{5}{18}$

9 (1) $\frac{49}{24}$
Alternative: $2\frac{1}{24}$
(2) $\frac{125}{72}$
Alternative: $1\frac{53}{72}$

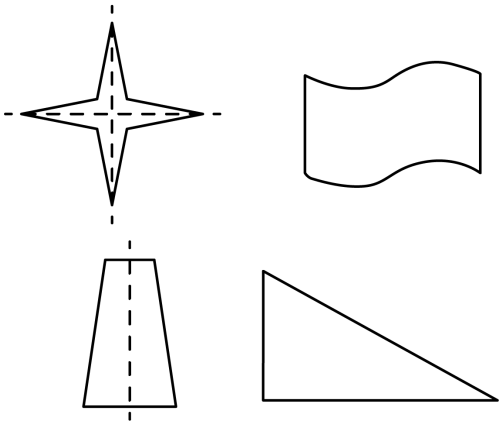
10 (1) $\frac{185}{42}$
(2) $\frac{44}{15}$

11 (1) $\frac{3}{10}$
(2) $\frac{7}{8}$

G4 [B2] Geometry

Symmetry

1



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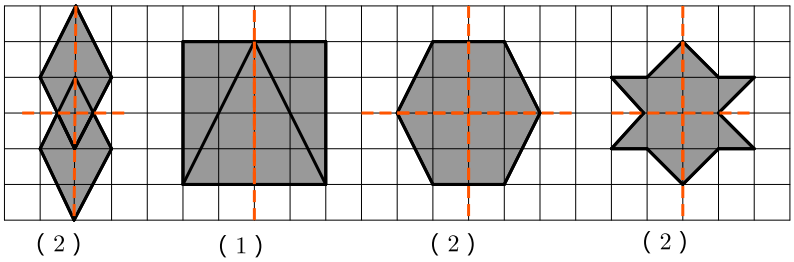

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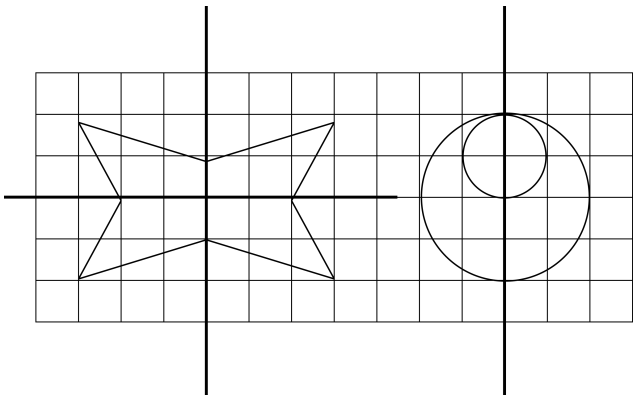


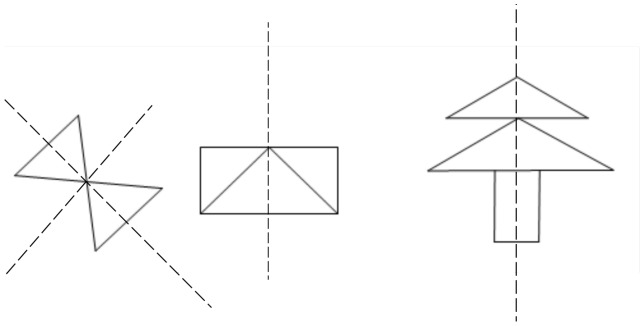
5 C

6 1:3

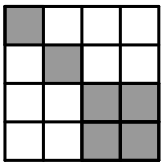
2:1

3:2

7



8 (1)



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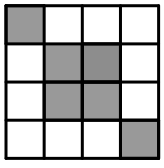
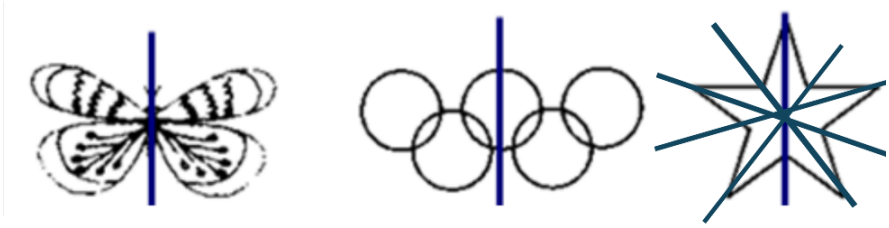
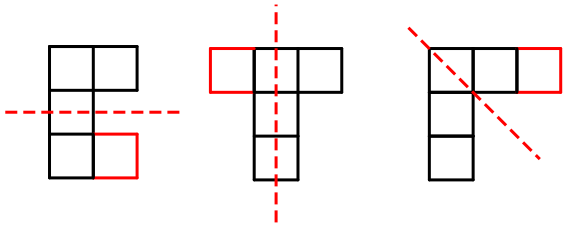


9 Symmetric figures:



Other figures are not symmetric.

10



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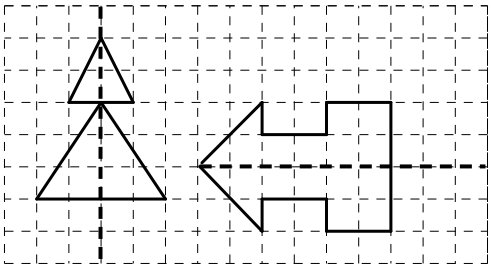

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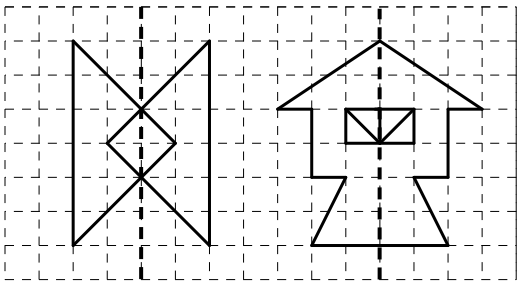

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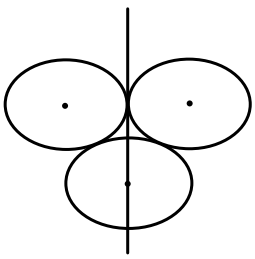

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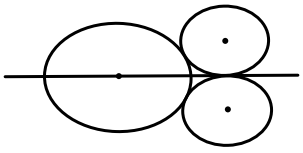

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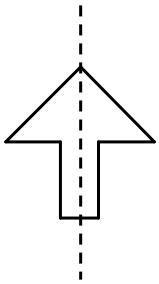

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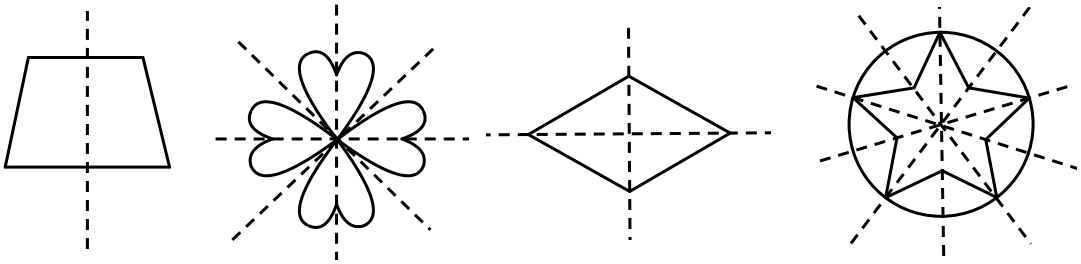

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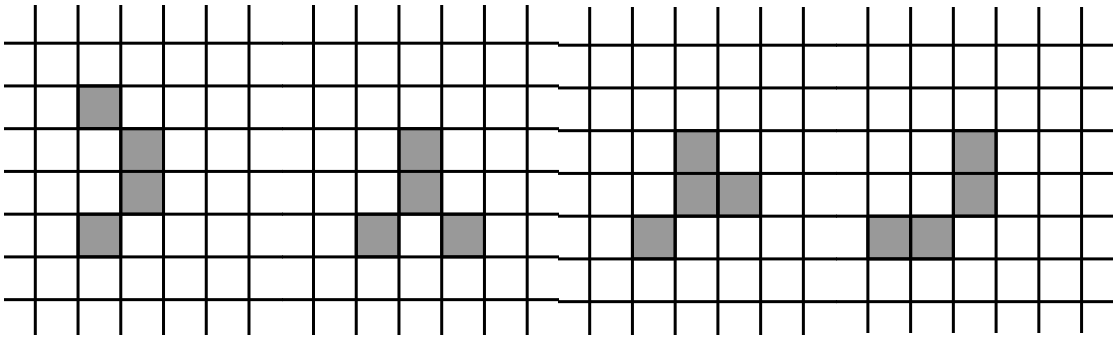

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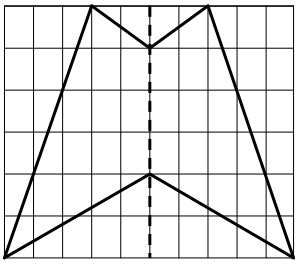

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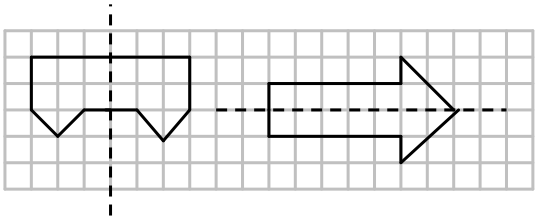

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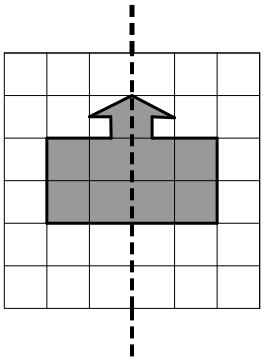

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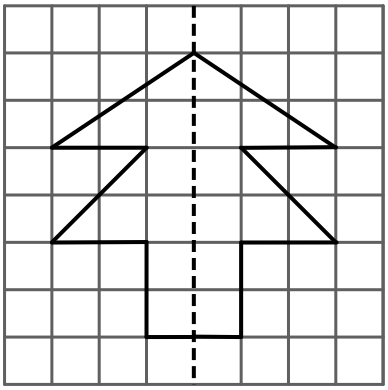

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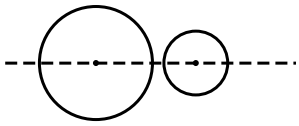

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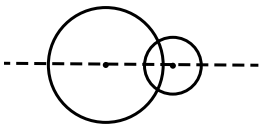

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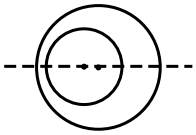


20 B

Knowing Triangles

1 118

2

Acute triangles	(3), (5)
Right triangles	(1)
Obtuse triangles	(2), (6)

3 46

4 2

5 $\angle 2 = 120°$; $\angle 4 = 25°$

6 1:obtuse

2:equilateral

Alternative:acute

3:isosceles

Alternative:acute

4:isosceles right

5:right

6:acute

7 C

8

Acute triangles	(3), (7)
Right triangles	(1), (5)
Obtuse triangles	(2), (4), (6)

9 1:right

2:acute

3:isosceles

Alternative:obtuse

4:equilateral

Alternative:acute

5:isosceles right

6:acute

Alternative:isosceles

10 138

11 D

12 B

13 A

Area of Triangles

1 B 2 D

3 (1) 360

(2) 1980

4 (1) 48

(2) 140

5 (1) 120

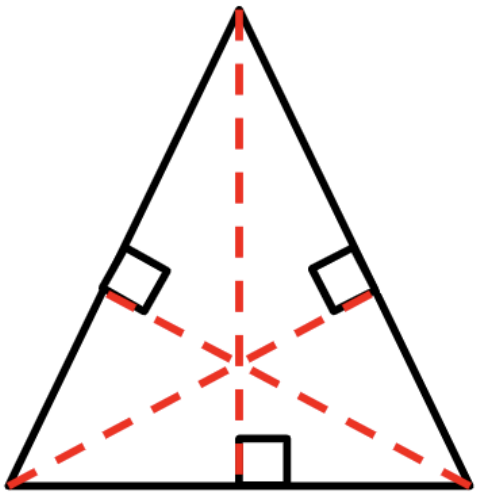
(2) 108

6 (1) 24

(2) 84

7 A

8 (1)



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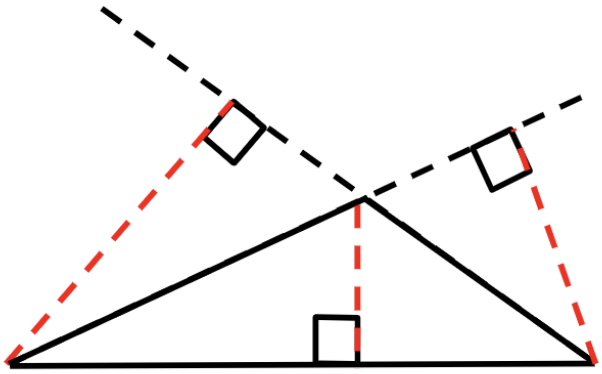
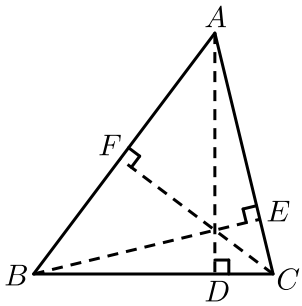


9 (1)



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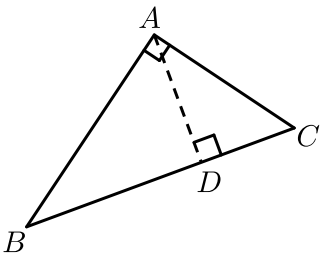

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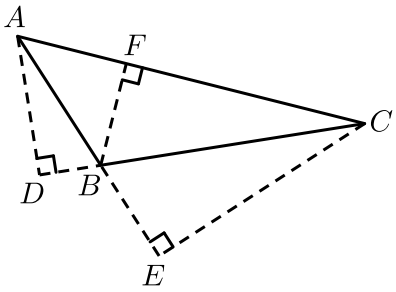
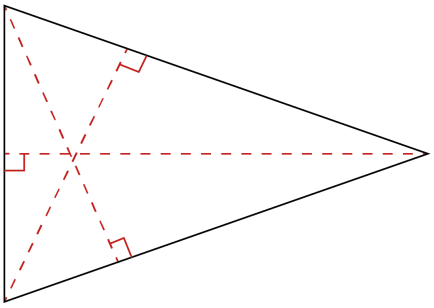


10 (1) **210**

(2) **180**

11 (1)



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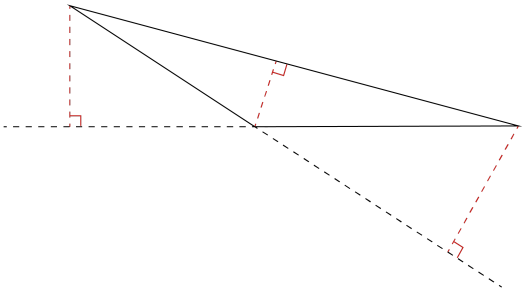


12 (1) **40** cm^2

(2) **36** cm^2

(3) 16 cm^2

13 (1) 168

(2) 198

14 D

Knowing Angles

1 B

2 (1) 1:115

2:obtuse

(2) 1:45

2:acute

(3) 1:60

2:acute

(4) 1:155

2:obtuse

3 B

4 1:a

2:c

5 1:4

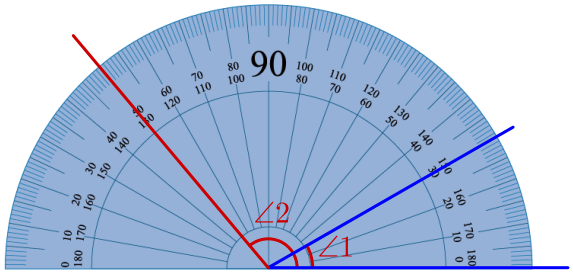
2:5

3:6

6 (1) 1:30

2:acute

(2)



7 1:②④

2:③⑤

3:①⑥

8 B 9 B 10 C 11 C 12 A

13 (1) 1:For estimate, accept any answer that is close to the actual answer

2:90°

(2) 1:For estimate, accept any answer that is close to the actual answer

2:132°

Alternative1:131°

Alternative2:133°

14 75°

15 (1) 6

(2) 2

16 1:For estimate, accept any answer that is close to the actual answer

2:$60°$

3:For estimate, accept any answer that is close to the actual answer

4:$126°$

Alternative1:$125°$

Alternative2:$127°$

5:For estimate, accept any answer that is close to the actual answer

6:$60°$

17 1:Right

2:Acute

3:Obtuse

4:Right

18 1:②

2:③

3:④

4:①

Vertical Angles

1 1:3

2:155

3:25

4:155

2 $125°$

3 $20°$

4 $15°$

5 1:4

2:146

3:146

4:34

6 $8°$

Parallel and Perpendicular

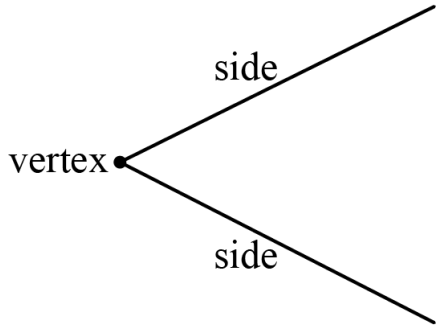
1 (1) FE and CD or AF and DE

(2) AF and FE or FE and ED or ED and CD or AF and CD

2 1:perpendicular

2:parallel

3 (1)



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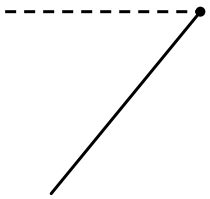

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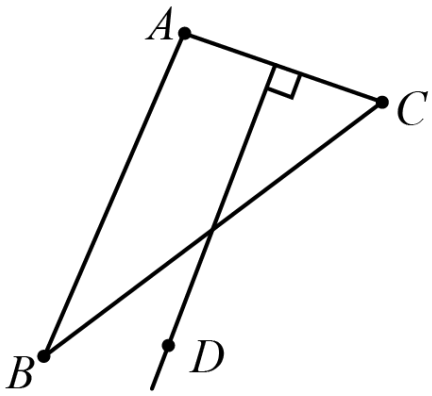

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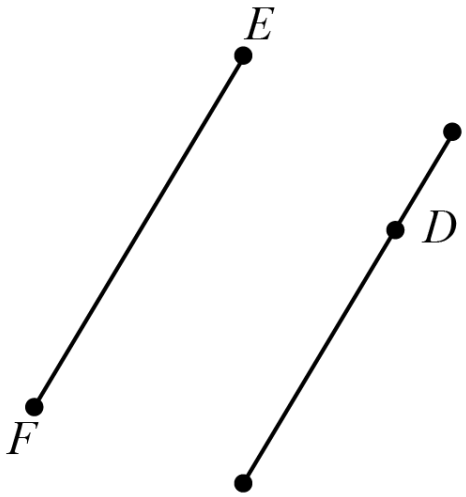

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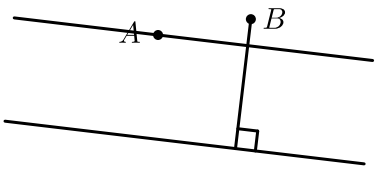
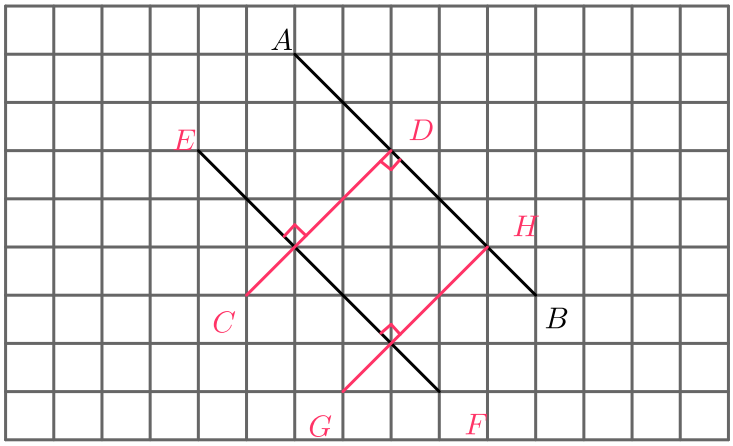


6 Accept all correct answers.



7 (1) ***EF***

(2) GH

G4 [B3] Word Problem

Word Problem of Fractions

1 7

2 $\frac{9}{20}$; $\frac{11}{20}$.

3 $\frac{19}{45}$; $\frac{26}{45}$.

4 The red wire is longer. The total length of two rolls of wire left is $5\frac{4}{7}$ m.

5 $\frac{43}{78}$; $\frac{35}{78}$.

6 90

7 $\frac{46}{63}$; $\frac{17}{63}$.

8 40

9 56

10 $\frac{3}{10}$; $\frac{7}{10}$.

11 $\frac{47}{56}$; $\frac{9}{56}$.

12 38

13 The duct tape is longer. The total length of two rolls of tape left is $2\frac{1}{2}$ m.

14 20

15 $\frac{2}{3}, \frac{1}{3}$.

16 280

17 $\frac{15}{28}, \frac{13}{28}$.

Word Problem of Decimals

1 Bob

2 13.87 kg

3 (1) 6.65 kg

(2) 5.6 kg

4 23.95 L

5 19.3 kg

6 (1) 8.30 kg

(2) 6.85 kg

7 21.16 L

8 8.35 kg

9 15.85 kg

10 (1) 5.85 kg

(2) 4.9 kg

11 James

12 15.31 tons

13 3.25 kg

14 375

Advanced Math

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G4 [A1] Number & Operations

Calculating Fractions, Decimals, and Percentages

1

1:0.625

2:62.5%

3:$\frac{7}{8}$

4:87.5%

5:$\frac{1}{4}$

6:0.25

7:$3\frac{6}{8}$

Alternative:$3\frac{3}{4}$

8:375%

9:0.375

10:37.5%

2

1:0.125

2:12.5%

3:0.375

4:37.5%

5:0.625

6:62.5%

7:0.875

8:87.5%

9:1.125

10:112.5%

3

1:0.2

2: 20%

3: $\frac{18}{5}$

4: 360%

5: $\frac{3}{8}$

6: 0.375

7: $\frac{23}{20}$

8: 115%

9: 1.7

10: 170%

4 (1) $\frac{5}{3}$

(2) $\frac{1}{40}$ or 0.025

5 $\frac{25}{42}$

6 4

7 2

8 (1) 8

(2) $\frac{1}{5}$

(3) $\frac{4}{9}$

9 20

10 8

11 $\frac{1}{12}$

12 $\frac{355}{113}$

13 C

14 (1) $\frac{19}{10}$
(2) $9\frac{4}{5}$

15 (1) $\frac{12}{7}$
(2) 2
(3) $\frac{17}{30}$

16 (1) $\frac{91}{30}$
Alternative: $3\frac{1}{30}$
(2) $45\frac{1}{3}$
Alternative: $\frac{136}{3}$

17 1

18 75

19 2.9

20 3

21

$1\frac{9}{10}$

22 39

23 1

Calculation Strategies on Fractions, Decimals, and Percentages

1 $17\frac{1}{5}$

Alternative1: $\frac{86}{5}$

Alternative2: 17.2

2 25

3 (1) 5

(2) 28

(3) 50.4

4 51

56

5

5 3

5

6 14.3

7 (1) 36.3

(2) $53\frac{7}{15}$

(3) 138

(4) 84.8

G4 [A2] Geometry

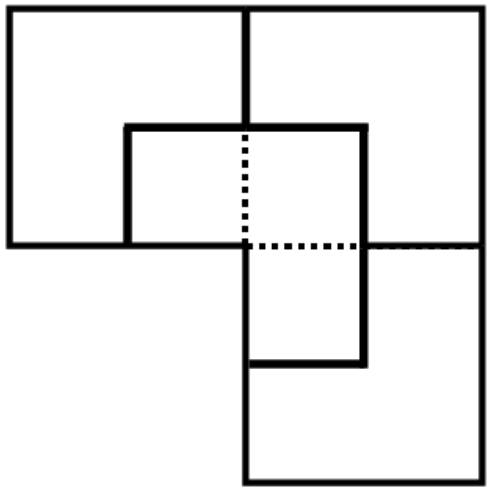
Cutting and Rearranging Shapes

1 25

2 90

3 40

4 12

5 

6 2016

7 288

8 4

9 8; 11

10 56; 9.5

11 20

12 16 cm

Different Shapes with the Same Base and Height

1 120

2 They have the same area, which is 25.

3 32 cm^2

4 40

5 108

6 8

7 75 cm^2

8 100

9 200

10 28

Circle

1 1:36

2:216

2 1:2

2:6

3:12

4:πr^2

3 96

4 1:6

2:21

5 2π

6 1:12

2:12

7 2

8 12π

9 9

10 $1:6$

$2:3$

11 5π

12 25.12

13 8π

Half-Area Model

1 50

2 $1:100$

$2:50$

3 5

4 42

5 4

6 30

7 68

G4 [A3] Word Problem

Lining Up Problem

1 31

2 15

3 21

4 36

5 12

6 28

7 31

8 55

9 36

Planting Trees Problem

1 100

2 1:5

2:10

3:24

3 9

4 4 pieces

5 24

6 24

7 29 meters

8 10 meters

9 30

10 2 times, 6 minutes

11 32

Find the Cycle

1 Coconut tree

2 134

3 The 30^{th} figure is ★ and there are 17 ☆ in the first 50 figures.

4 166

5 The 41^{st} student is a girl and the 58^{th} is a boy.

6 The 35^{th} student is a girl and the 69^{th} is a boy.

Distance, Time, and Speed

1 110 miles

2 (1) A

(2) B

(3) B

3 18; 3

4 150

5 (1) B (2) C (3) A

6 120 miles

7 (1) C

(2) B

(3) A

8 4; 5

9 (1) 1400

(2) 5

(3) 200

10 200

11 (1) The speed downstream: 39 km/h; The speed upstream: 31 km/h.

(2) The speed of the current: 5 km/h; The speed upstream: 16 km/h.

(3) The speed of the current is 3 km/h. The speed of the boat in still water is 21 km/h.

12 17 s

13 50 m/s

14 2250

15 (1) 3600 m

(2) 8 m/s

(3) 8 h

(4) A, B ;

C, B ;

C, A

16 (1) 5400 m

(2) 4 m/s

(3) 6 h

A, B

C, B

C, A

17 1000

18 400

Inclusion and Exclusion

1 206

2 29

3 8

4 40

5 26

6 267

7 23

Find the Unit

1. 72

2. 51

3. 6

4. 5

5. 4

Meeting Problem

1. 120; 6

2. 45 kilometers

3. 5 hours

4. 192 miles

5. 200; 2

6. 100; 85

Chasing Problem

1 50; 165

2 60; 185

3 2 min

4 100; 147

5 3 min

6 38 minutes

7 105; 130

Chicken-Rabbit Problem

1 7; 3

2 5

3 38; 18

4 6; 3

5 7; 7

6 1:40

2:4

7 8; 7

8 25; 75

9 13; 7

G4 [A4] Number Theory

Prime Number

1 229

2 (1) $285 = 3 \times 5 \times 19$

(2) $343 = 7^3$

(3) $1771 = 7 \times 11 \times 23$

3 1:6^4

2:a^{p-q}

3:1

4 A

5 (1) It is a prime number

(2) It is a composite number

(3) It is a composite number

6 (1) B; C; D; F.

(2) $15 = 3 \times 5$

$30 = 2 \times 3 \times 5$

$45 = 3^2 \times 5$

$60 = 2^2 \times 3 \times 5$

$75 = 3 \times 5^2$

Greatest Common Factor & Least Common Multiple

1 (1) 1

(2) 33

(3) 12

2 (1) 50

(2) 247

(3) 360

3 (1) 6

(2) 108

4 (1) 90

(2) 60

(3) 72

5 (1) 24

(2)420

(3) 80

6 (1) 1

(2) 10

(3) 15

7 (1) 84

(2) 108

(3) 135

8 (1) 9

(2) 108

9 (1) 112

(2) 216

(3) 72

10 (1) 72

(2)144

(3) 504

11 (1) 52

(2) 132

(3) 288

12 (1) 120

(2)60

(3) 250

13 (1) 216

(2)42

(3) 750

14 (1) 3

(2) 216

15 (1) 42

(2) 110

(3) 78

16 (1) 48

(2) 117

(3) 102

17 (1) 5

(2) 300

18 (1) 1

(2) 9

(3) 6

19 (1) 144

(2)24

(3) 28

20 (1) 1

(2) 8

(3) 23

21 (1) 55

(2) 120

(3) 648

22 (1) 1

(2) 36

(3) 25

23 (1) 57

(2) 143

(3) 66

24 (1) 140

(2)182

(3) 81

25 (1) 105

(2) 104

(3) 576

26 (1) 6

(2) 180

27 (1) 9

(2) 36

28 (1) 104

(2) 204

(3) 448

29 (1) 6

(2) 432

30 (1) 26

(2) 286

(3) 504

31 (1) 1

(2) 30

(3) 2

32 (1) 1

(2) 7

(3) 2

33 (1) 3

(2) 60

34 (1) 7

(2) 196

35 (1) 50

(2) 247

(3) 180

36 (1) 1

(2) 19

(3) 9

37 (1) 1

(2) 17

(3) 6

38 (1) 14

(2) 84

39 (1) 60

(2)24

(3) 216

Crazy Math

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G4 [C1] AMC 8

1 A 2 B 3 B 4 D 5 C 6 E 7 C 8 C 9 A 10 D 11 C

12 D 13 B 14 A 15 A 16 C 17 B 18 D 19 E 20 D 21 D 22 B

23 C 24 A 25 C 26 C 27 A 28 A 29 C 30 E 31 C 32 D 33 C

34 C 35 A 36 C 37 B 38 B 39 D 40 E 41 D 42 D 43 C 44 D

45 E 46 E 47 A 48 D 49 B 50 C 51 B 52 C 53 C 54 D 55 E

56 B 57 B 58 D 59 B 60 B 61 B 62 C 63 C 64 B

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G4 [C2] Think One on One

1. 41

2. $12,750$

3. 2

4. $\frac{2}{5}$

5. 256

6. 30

7. $2\frac{5}{7}$
   Alternative: $\frac{19}{7}$

8. 7

9. 720

10. 3

11. 40

12.

94

13 8

14 17

15 252

16 540

17 Tuesday

18 2

19 75

20 162

21 8.5

22 105

23 120

24 12

25 177

26 288

27 224

28 60°

29 36

30 10

31 900

32 108

33 9

34 24

35 41

36 210

37 2

38 $\frac{2}{3}$

39 45

40 3

41 4

42 50

43 27

44 6

45 420

46 625

47 1000

48 20

49 10

50 602

51 Sunday

52 8

53 9

54 175

55 December

56 54

57 26

58 2400

59 3

60 360

61 180

62 6

63 32

64 19.5

65 220

66 1

67 1035

68 36

69 26

70 82

71 6

72 11

73 C

74 13

75 $\frac{1}{2021}$

76 7

77 19

78 30

79 1

80 11

81 74

82 160

83 54

84 10

Think Academy

G4 [C3] Think Cup

1 D 2 B 3 C 4 E 5 E 6 D 7 E 8 C 9 D 10 B 11 B

12 B 13 E 14 D 15 C 16 B 17 C 18 B 19 D 20 D 21 D 22 B

23 C 24 D 25 E 26 B 27 C 28 D 29 B 30 C 31 D 32 B 33 D

34 D 35 C 36 B 37 D 38 C 39 C 40 C 41 B 42 C 43 C 44 D

45 B

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