Math Mammoth Grade 7 End-of-the-Year Test
Answer Key, South African Version

If you are using this test to evaluate a student's readiness for Algebra 1, I recommend that the student gain a score of 80% on the first four sections (Integers through Ratios, Proportions, and Percent). The subtotal for those is 118 points. A score of 94 points is 80%.

I also recommend that the teacher or parent revise with the student any content areas in which the student may be weak. Students scoring between 70% and 80% in the first four sections may also continue to Algebra 1, depending on the types of errors (careless errors or not remembering something, versus a lack of understanding). Use your judgement.

You can use the last four sections to evaluate the student's mastery of topics in Math Mammoth Grade 7 South African Version Curriculum. However, mastery of those sections is not essential for a student's success in an Algebra 1 course.

A calculator is *not* allowed for the first three sections of the test: Integers, Rational Numbers, and Algebra.
A basic calculator *is* allowed for the last five sections of the test: Ratios, Proportions, and Percent; Geometry, The Pythagorean Theorem, Probability, and Statistics.

My suggestion for points per item is as follows.

Question #	Max. points	Student score
Integers		
1	2 points	
2	2 points	
3	3 points	
4	6 points	
5	2 points	
6	3 points	
	subtotal	/ 18
Rational Numbers		
7	8 points	
8	3 points	
9	3 points	
10	2 points	
11	4 points	
	subtotal	/ 20
Algebra		
12	6 points	
13	3 points	
14	12 points	
15	2 points	
16a	1 point	
16b	2 points	
17	3 points	
18	4 points	

Question #	Max. points	Student score
19a	2 points	
19b	1 point	
20	8 points	
21	2 points	
22a	2 points	
22b	1 point	
	subtotal	/ 49
Ratios, Proportions, and Percent		
23	4 points	
24a	1 point	
24b	2 points	
24c	1 point	
24d	1 point	
25a	1 point	
25b	2 points	
26	2 points	
27	2 points	
28a	2 points	
28b	2 points	
29	2 points	
30	2 points	
31	2 points	
32	Proportion: 1 point Solution: 2 points	
33	2 points	
	subtotal	/ 31
SUBTOTAL FOR THE FIRST FOUR SECTIONS:		**/118**

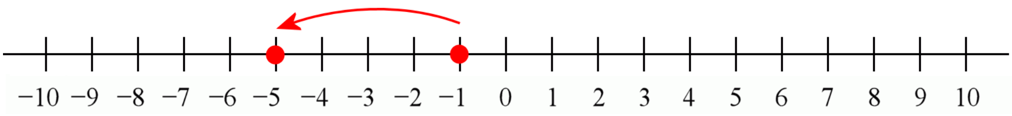
Question #	Max. points	Student score
Geometry		
34a	2 points	
34b	2 points	
35	3 points	
36	2 points	
37	2 points	
38	2 points	
39a	1 points	
39b	3 points	
40a	2 points	
40b	2 points	
41	2 points	
42	3 points	
43a	2 points	
43b	2 points	
44a	2 points	
44b	2 points	
45a	2 points	
45b	1 point	
46a	1 point	
46b	2 points	
	subtotal	/ 40
The Pythagorean Theorem		
47	2 points	
48	2 points	
49	2 points	
50	3 points	
	subtotal	/9

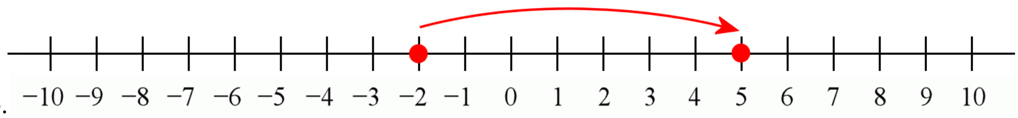
Question #	Max. points	Student score
Probability		
51	3 points	
52a	2 points	
52b	1 point	
52c	1 point	
52d	1 point	
53	3 points	
54	3 points	
	subtotal	/14
Statistics		
55	2 points	
56a	1 point	
56b	2 points	
56c	2 points	
57	2 points	
58a	1 point	
58b	1 point	
58c	1 point	
58d	3 points	
	subtotal	/15
SUBTOTAL FOR THE LAST FOUR SECTIONS:		**/78**
TOTAL		**/196**

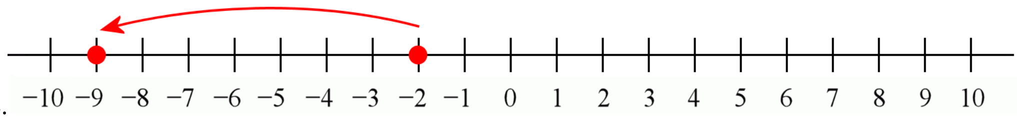
Integers

1. Answers will vary. Check the student's answer. $-15 + 10 = -5$. For example: A fish swimming at a depth of 15 m rose 10 m, and now it is 5 m below the surface. Or, Mary owed her mum R15. She paid back R10 of her debt, and now she only owes her mum R5. Or, the temperature was $-15°$. It rose 10 degrees and now the temperature is $-5°$.

2. Answers will vary. Check the student's answer. $4 \cdot (-2) = -8$. For example: A certain ion has a charge of -2. Four such ions have a charge of -8. Or, four students bought a banana for R2 each, but none of them had any money with them. Each of them borrowed R2 from a teacher. Now, their total debt is R8. Or, a stick reaches 2 m below the surface of the lake. If we put four such sticks end-to-end, they will reach to the depth of 8 m below the surface.

3. a.


b.


c.


4. a. 2 b. −1 c. 25 d. 24 e. −12 f. 12

5. $|-5 - (-15)| = |10| = 10$.

6. a. −1/8 b. −1/4 c. 4 1/5

Rational Numbers

7. a. 1 1/28 b. $45{,}8\overline{3}$
c. 0,00077 d. 0,0144
e. 1 4/5 f. −6 2/7
g. −0,2 or −1/5 h. 4

See below full solutions for 7. **g.** and 7. **h.** since they involve both a fraction and a decimal.

g. $-\frac{1}{6} \cdot 1{,}2$ If we use fraction arithmetic, this becomes: $= -\frac{1}{6} \cdot \frac{12}{10}$ $= -\frac{1}{6} \cdot \frac{6}{5} = -\frac{1}{5}$ If we use decimal arithmetic, we get $-\frac{1}{6} \cdot 1{,}2 = 1{,}2 \div (-6) = -0{,}2$	h. $-\frac{2}{5} \div (-0{,}1)$ If we use decimal arithmetic, this becomes $-0{,}4 \div 0{,}1 = 4$ (because $4 \cdot 0{,}1 = 0{,}4$). With fraction arithmetic, we get $-\frac{2}{5} \div \left(-\frac{1}{10}\right)$ $= \frac{2}{5} \cdot \frac{10}{1} = 4$

8. a. 1748/10000 b. −483/100000 c. 2 43928/1000000

9. a. −0,0028 b. 24,93 c. 7,01338

10. a. 0,53846 b. $1,\overline{81}$

11.

a. $1{,}2 \cdot 25 = 30$ Answers will vary. Check the student's answer. For example: The price of a toy car that cost R25 increased by 20%. The new price is R30. Or, a line segment that is 25 cm long is scaled by a scale factor 1,2, and it becomes 30 cm long. Or, the lunch break, which used to be 25 minutes long, is increased by 1/5. Now it is 30 minutes long.
b. $(3/5) \div 4 = (3/5) \cdot (1/4) = 3/20$. Answers will vary. Check the student's answer. For example: There is 3/5 of a large pizza left, and four people share it equally. Each person gets 3/20 of the original pizza.

Algebra

12.

a. $15s - 10$	b. $5x^4$	c. $3a + 3b - 6$
d. $1{,}02x$	e. $2w - 4$	f. $-3{,}9a + 0.5$

13.

a. $7x + 14$ $= 7(x + 2)$	b. $15 - 5y$ $= 5(3 - y)$	c. $21a + 24b - 9$ $= 3(7a + 8b - 3)$

14.

a. $\begin{aligned} 2x - 7 &= -6 \\ 2x &= 1 \\ x &= 1/2 \end{aligned}$	b. $\begin{aligned} 2 - 9 &= -z + 4 \\ -7 &= -z + 4 \\ -11 &= -z \\ z &= 11 \end{aligned}$
c. $\begin{aligned} 120 &= \frac{c}{-10} \\ -1200 &= c \\ c &= -1200 \end{aligned}$	d. $\begin{aligned} 2(x + ½) &= -15 \\ 2x + 1 &= -15 \\ 2x &= -16 \\ x &= -8 \end{aligned}$
e. $\begin{aligned} \frac{2}{3}x &= 266 \\ 2x &= 798 \\ x &= 399 \end{aligned}$	f. $\begin{aligned} x + 1\frac{1}{2} &= \frac{3}{8} \\ x &= \frac{3}{8} - 1\frac{1}{2} \\ x &= \frac{3}{8} - \frac{12}{8} = -\frac{9}{8} = -1\frac{1}{8} \end{aligned}$

15. From the formula $d = vt$ we can find that $t = d/v$. In this case, $t = 0{,}8$ km/(12 km/h) $= 0{,}0\overline{6}$ h $= 0{,}0\overline{6}$ h · (60 min/h) = <u>4 minutes</u>. This is reasonable because the distance he ran is fairly short.

16. a. The equation that matches the situation is $\dfrac{4w}{5} = 480$.

b.
$$\begin{aligned} \frac{4w}{5} &= 480 \\ 4w &= 2400 \\ w &= 600 \end{aligned}$$

The original price was R600.

17. Let w be the width of the rectangle. The student can write any of the equations below:

- $2w + 2 \cdot 55 = 254$
- $2w + 110 = 254$
- $w + w + 55 + 55 = 254$
- $w + w + 110 = 254$
- $w + 55 + w + 55 = 254$

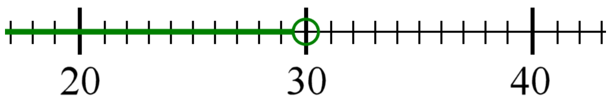
A solution of the equation:

$$\begin{aligned} 2w + 110 &= 254 \\ 2w &= 144 \\ w &= 72 \end{aligned}$$

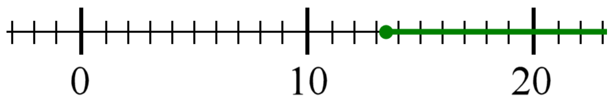
The rectangle is <u>72 cm</u> wide.

18.

a.
$$\begin{aligned} 3x - 7 &< 83 \\ 3x &< 90 \\ x &< 30 \end{aligned}$$



b.
$$\begin{aligned} 2x - 16{,}3 &\geq 10{,}5 \\ 2x &\geq 26{,}8 \\ x &\geq 13{,}4 \end{aligned}$$



19. a. Let n be the number of packages. The cost of the balloons with the discount is $21n - 40$.
The inequality is $21n - 40 \leq 200$. Solution:

$$\begin{aligned} 21n - 40 &\leq 200 \\ 21n &\leq 240 \\ n &\leq 11{,}42857... \end{aligned}$$

b. The solution means that you can buy 11 packages at most.

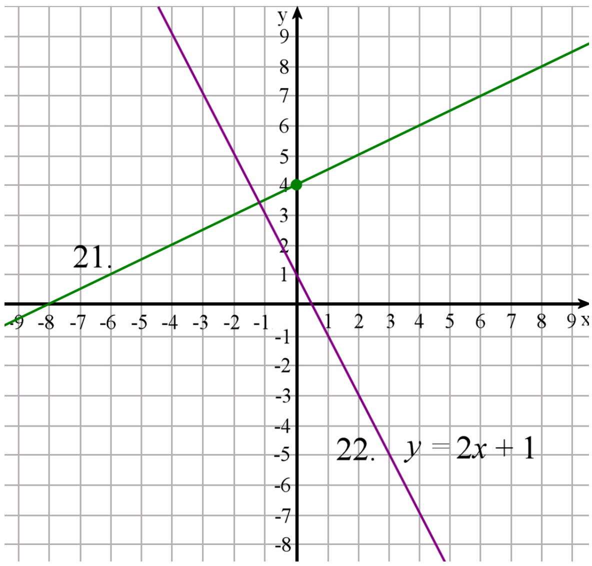
20.

a. $\begin{aligned} 9y - 2 + y &= 5y + 10 \\ 10y &= 5y + 10 + 2 \\ 5y &= 12 \\ y &= 12/5 = 2\ 2/5 \end{aligned}$	b. $\begin{aligned} 2(x + 7) &= 3(x - 6) \\ 2x + 14 &= 3x - 18 \\ 2x - 3x &= -18 - 14 \\ -x &= -32 \\ x &= 32 \end{aligned}$
c. $\begin{aligned} \frac{y + 6}{-2} &= -10 \\ y + 6 &= 20 \\ y &= 14 \end{aligned}$	d. $\begin{aligned} \frac{w}{2} - 3 &= 0{,}8 \\ \frac{w}{2} &= 3{,}8 \\ w &= 7{,}6 \end{aligned}$

21. See the graph on the right.

22. a. See the graph on the right.

b. The slope is −2.

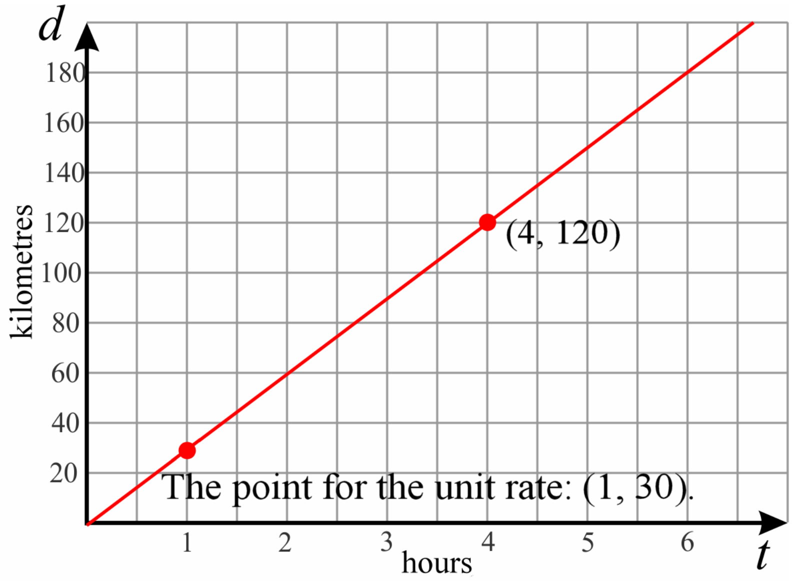


Ratios, Proportions, and Percent

23.

a. The total taxi fare was R480. $\dfrac{\text{R}180}{\frac{3}{8}} = \text{R}180 \cdot \dfrac{8}{3} = \text{R}480$
b. John can pick 3 1/3 pails of strawberries per hour. $\dfrac{2\frac{1}{2}}{\frac{3}{4}\text{ h}} = \dfrac{5}{2} \cdot \dfrac{4}{3}\text{ pails/h} = \dfrac{20}{6}\text{ pails/h} = 3\ \dfrac{1}{3}\text{ pails/h}$

24. The graph below shows the distance covered by a moped advancing at a constant speed.



a. The speed of the moped is 30 km/h.

b. See the image above. The point is (4, 120), and it signifies that after driving 4 hours, the moped has covered 120 km.

c. $d = 30t$

d. See the image. It is the point (1, 30).

25. a. Car A gets better fuel economy, because it gets 900 km/45 L = 20 km/L whereas Car B gets 995 km/65 L ≈ 15,3 km/L.

b. The cost of driving 500 km with Car A is 500 km · (45 L/900 km) · R13/L = R325.
The cost of driving 500 km with Car B is 500 km · (65 L//995 km) · R13/L ≈ R455.
The difference is R455 − R325 = <u>R130</u>.

26. She can withdraw R25 000 · 0,08 · 3 + R25 000 = R6000 + R25 000 = <u>R31 000</u>.

27. After the 15% price increase, the ticket costs 1,15 · R10 = R115.
Then, the price decreased by 25% is 0,75 · R115 = R86,25 was the final price.

28. a. The percentage of increase was (72 000 − 51500)/51 500 ≈ <u>39,8%</u>.

b. She will have 1,398 · 72 000 = 100 656 visitors ≈ <u>101 000 visitors</u>.

29. Let r be the amount of rainfall in the previous month. Then, $1{,}35r$ = 10,5 cm, from which r = 10,5 cm/1,35 ≈ <u>7,8 cm</u>.

30. The side of the enlarged square is (4/3) · 15 cm = 20 cm. Its area is 20 cm · 20 cm = <u>400 cm^2</u>.

31. There are two basic ways to calculate the distance on the map from the distance in reality. One way is that we first convert the given distance, 8 km, into centimetres, which are units used on the map, and then multiply by the ratio 1:50 000.

8 km = 8 000 m = 800 000 cm. The distance on the map is 800 000 cm · (1/50000) = <u>16 cm</u>.

Another way is to convert the ratio so that it uses common measuring units. The ratio 1:50 000 signifies that 1 cm on the map is 50 000 cm in reality. From this, we can write 1 cm = 50 000 cm = 500 m = 0,5 km. So 1 cm on the map corresponds to 0,5 km in reality. The given distance of 8 km corresponds to 8 km ÷ (0,5 km/1 cm) = <u>16 cm</u>.

32. Proportions vary as there are several different ways to write the proportion correctly. Here are four of the correct ways. Besides these four, you will get four more by switching the right and left sides of these four equations.

$\frac{600 \text{ ml}}{554 \text{ g}} = \frac{5000 \text{ ml}}{x}$	$\frac{554 \text{ g}}{600 \text{ ml}} = \frac{x}{5000 \text{ ml}}$	$\frac{5000 \text{ ml}}{600 \text{ ml}} = \frac{x}{554 \text{ g}}$	$\frac{600 \text{ ml}}{5000 \text{ ml}} = \frac{554 \text{ g}}{x}$

The key point is that in each of the correct ways, x ends up being multiplied by 600 ml in the cross-multiplication. If x ends up being multiplied by 554 g or 5 000 ml in the cross-multiplication, the proportion is set up incorrectly.

Here is the solution process for one of the proportions above. Each of the others has the same final solution, $\underline{x = 4\ 617 \text{ g}}$.

$$\frac{600 \text{ ml}}{554 \text{ g}} = \frac{5000 \text{ ml}}{x}$$

$$600 \text{ ml} \cdot x \qquad 554 \text{ g} \cdot 5\,000 \text{ ml}$$

$$x = \frac{554 \text{ g} \cdot 5000 \text{ ml}}{600 \text{ ml}}$$

$$x = 4\,617 \text{ g}$$

33. A farmer sells potatoes in sacks of various weights. The table shows the price per weight.

Weight	5 kg	10 kg	15 kg	20 kg	30 kg	50 kg
Price	R26	R50	R60	R80	R100	R160

a. These two quantities are *not* in proportion. For example, looking at the cost of potatoes for 5 kg and for 20 kg, the weight increases four-fold, but the cost increases only about three-fold (from R26 to R80). Or, when the weight increases three-fold from 5 kg to 15 kg, the price does not increase three-fold, but from R26 to R60.

Another way to see that is in the beginning of the chart, the weights increase by 5 kg up to 20 kg, but the cost does not increase by the same amount. Instead, the cost increases first by R24, then by R10, then by R20.

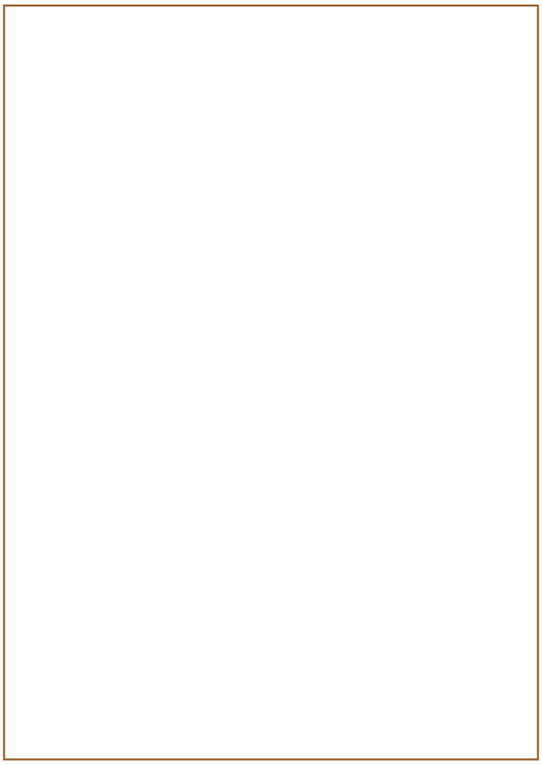
b. There is no need to answer this, since the quantities are not in proportion.

Geometry

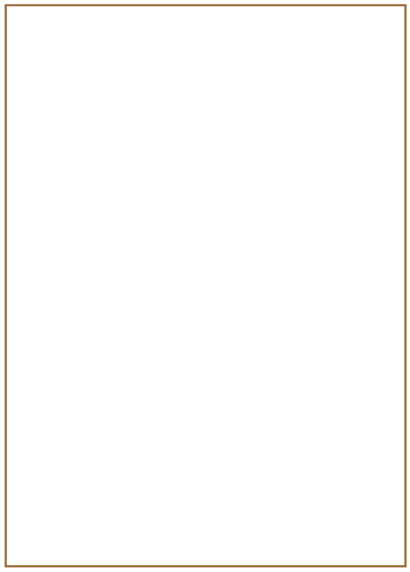
34. a. The given rectangle measures 7 cm by 10 cm. We multiply those by 45 to get the true dimensions:
7 cm · 45 = 315 cm = 3,15 m and 10 cm · 45 = 450 cm = 4,5 m.
The area is A = 3,15 m · 4.5 m = 14,175 m^2.

b. The dimensions of the room at a scale 1:60 will be 45/60 = 3/4 of the dimensions of the room drawn at a scale of 1:45 so the scale drawing will be smaller than the drawing given in the problem.
The width is (3/4) · 7 cm = 5,25 cm and the height is (3/4) · 10 cm = 7,5 cm.

Or, you can divide the actual dimensions by 60 to get 315 cm ÷ 60 = 5,25 cm and 450 cm ÷ 60 = 7,5 cm.



Scale 1:45



Scale 1:60

35. We simply multiply the given dimensions (which are in cm) by the ratio 1 m/1 cm:

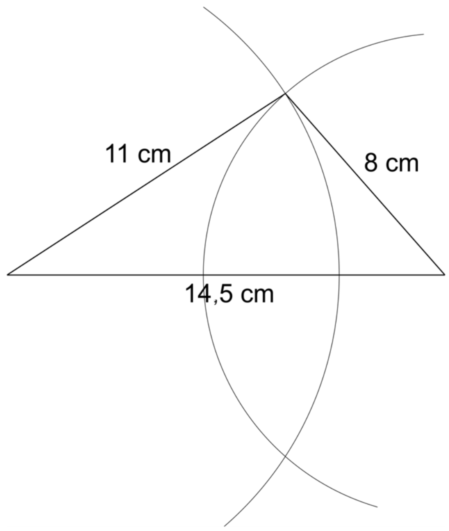
4 cm ·1 m = 4 m and

3 cm · 1 m = 3 m. So the actual room size is 4 m by 3 m.

36. A = $\pi \cdot (8\text{ cm})^2 \approx 201\text{ cm}^2$.

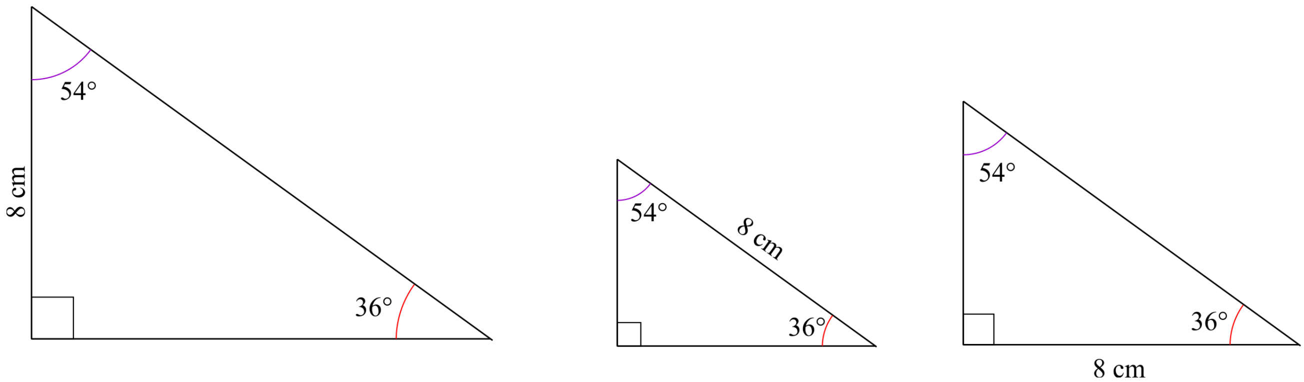
37. C = π · 2 · 9 cm = 56,5 cm.

38. Check the student's drawing. The image below is not to true scale, but the student's drawing of a triangle should have the same shape as the triangle below. It will just be larger.



39. a. No, it doesn't.

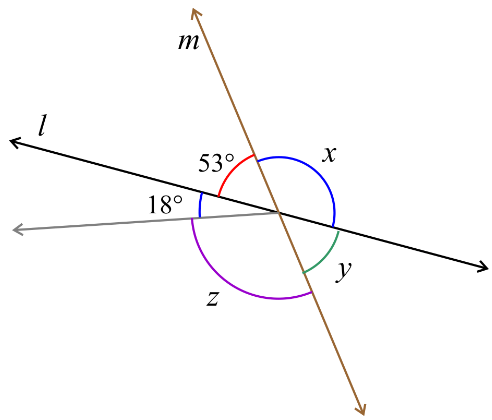
b. The three given angles determine the shape of the triangle. The 8-cm side can be opposite of any of the given angles, so we get three different triangles. The images below are not to true scale but are smaller than in reality. They give you an idea of what the three different triangles look like. Check the student's drawings.



40. a. There are several ways to write an equation for x.

(1) Since angle x and the 53° angle are supplementary, $x + 53° = 180°$, from which $x = 180° - 53° = 127°$.

(2) Angle y and the 53° angle are vertical angles, so $y = 53°$. Then, angle x and angle y are supplementary, so we can write the equation $x + 53° = 180°$, and once again $x = 180° - 53° = 127°$.



b. There are several ways to write an equation for z.

(1) Since angles y, z, and the 18° angle lie along the same line (line l), their measures sum up to 180°, and we can write $y + z + 18° = 180°$. Since y and the 53° angle are vertical angles, $y = 53°$ and we can substitute that for y in the equation to get:

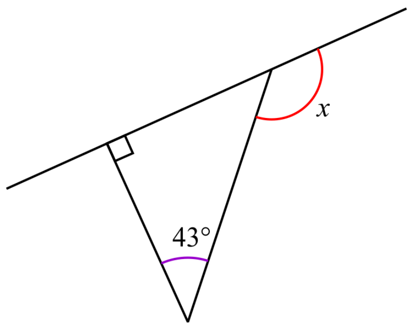
$$\begin{aligned} 53° + z + 18° &= 180° \\ z &= 180° - 53° - 18° \\ z &= 109° \end{aligned}$$

(2) Or, since the combination angle $z + 18°$ and x are vertical angles, $z + 18° = x$. From part (a) we know that $x = 127°$ so the equation becomes:

$$\begin{aligned} z + 18° &= 127° \\ z &= 127° - 18° \\ z &= 109° \end{aligned}$$

41. The triangle in the image has an angle of 43° and a right angle, so its third angle is $180° - 43° - 90° = 47°$.

The unknown angle x supplements the third angle of the triangle, so its measure is $180° - 47° =$ <u>133°</u>.



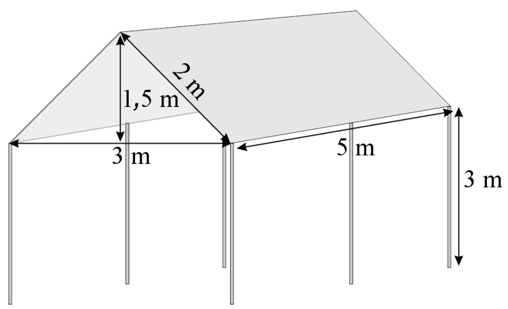
42. a. The cross section is a <u>rectangle</u>.

b. The cross section is a <u>triangle</u>.

c. The cross section is a <u>trapezoid</u>.

43. a. The roof or top part of the entire canopy is a triangular prism. The base of the prism is a triangle with a base side of 3 m and a height of 1,5 m, so its area is 3 m · 1,5 m / 2 = 2,25 m^2.

The volume is $V = A_b \cdot h$ = 2,25 m^2 · 5 m = 11,25 m^3.

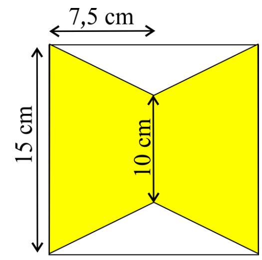


b. The bottom part is a rectangular prism, and its volume is 3 m · 5 m · 3 m = 45 m^3.

The total volume is 2,2 m^3 + 45 m^3 = <u>47,2 m^3</u>.

44. a. One way is to use the formula for the area of a trapezoid. See the image on the right.
The area of one trapezoid is A = (10 cm + 15 cm)/2 · 7,5 cm = 93,75 cm^2.

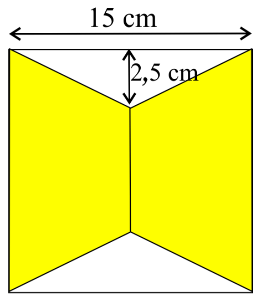
Then, the area of the two trapezoids is 2 · 93,75 cm^2 = 187,5 cm^2.



Another way is to subtract the area of the two white triangles from the area of the entire 15 cm by 15 cm square.

The area of one triangle is 15 cm · 2,5 cm/2 = 18,75 cm^2.

The area of the two trapezoids is then 15 cm · 15 cm − 2 · 18,75 cm^2 = 187,5 cm^2.



b. The trapezoids cover 187,5/(15 · 15) ≈ 83,3% of the entire square.

45. a. $V = A_b \cdot h = \pi \cdot (6\text{ cm})^2 \cdot 4{,}5\text{ cm} = 508{,}938\text{ cm}^3 \approx \underline{509\text{ cm}}^3$.

b. The volume is 509 ml = 0,509 L.

46. a. There are 100 cm · 100 cm · 100 cm = 1 000 000 m^3.

b. V = 3,25 m · 3,25 m · 3,25 m = 34,33 m^3.

The Pythagorean Theorem

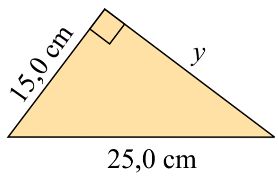
47. a. Its area is 5 m^2, because $(\sqrt{5}\text{ m})(\sqrt{5}\text{ m}) = (\sqrt{5}\text{ m})^2 = 5\text{ m}^2$.

b. It is $\sqrt{45}$ cm ≈ 6,7 cm.

48.
$$\begin{aligned} 57^2 + 76^2 &\stackrel{?}{=} 95^2 \\ 3\,249 + 5\,776 &\stackrel{?}{=} 9\,025 \\ 9\,025 &= 9\,025 \end{aligned}$$

Yes, the lengths 57 cm, 95 cm, and 76 cm do form a right triangle.

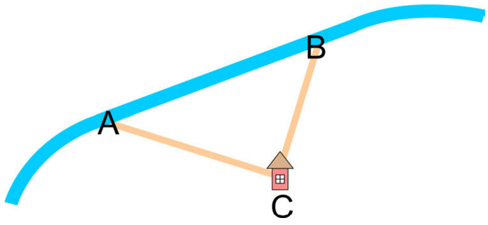
49. Using the Pythagorean Theorem, we can write the equation



$$\begin{aligned} 15^2 + y^2 &= 25^2 \\ 225 + y^2 &= 625 \\ y^2 &= 400 \\ y &= \sqrt{400} = 20 \quad \text{(We ignore the negative root.)} \end{aligned}$$

The side is 20 cm long.

50. Let x be the length AB. Since ABC is a right triangle, applying the Pythagorean Theorem we get:

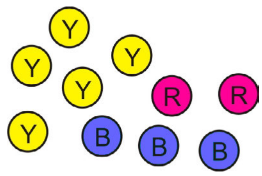


$$120^2 + 110^2 = x^2$$
$$14\,400 + 12\,100 = x^2$$
$$x^2 = 26500$$
$$y = \sqrt{26500} = 162{,}788 \text{ m} \quad \text{(We ignore the negative root.)}$$

You will walk 120 m + 110 m = 230 m. Your friends walk 163 m. So, you will walk 230 m − 163 = <u>67 m</u> more than your friends.

Probability

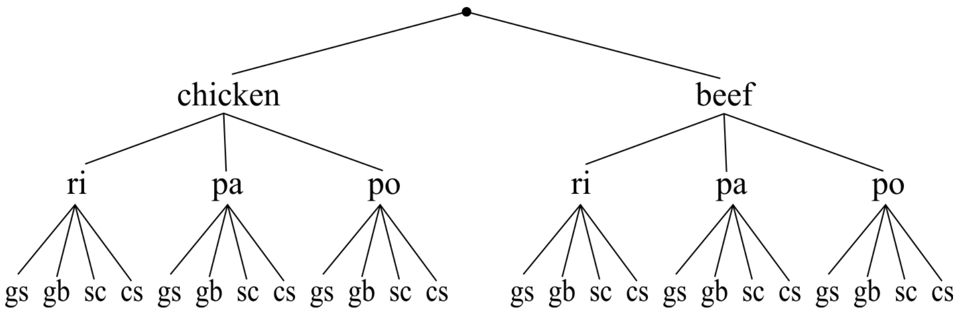
51. a. P(not red) = 8/10 = 4/5



b. P(blue or red) = 5/10 = 1/2

c. P(green) = 0

52. a.

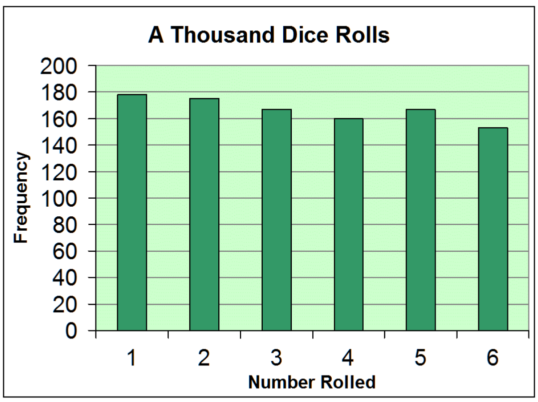


b. P(beef, rice, coleslaw) = 1/24

c. P(no coleslaw nor steamed cabbage) = 12/24 = 1/2

d. P(chicken, green salad) = 3/24 = 1/8

53. None of the conclusions (a), (b), or (c) are valid.



(a) This dice is unfair.

Not valid. In a repeated random experiment, the frequencies for the various outcomes do vary, and the variability seen in the chart is definitely within normal variation. In fact, the data comes from running a computer simulation that uses random numbers, and the simulation was run 1 000 times.

(b) On this dice, you will always get more 1s than 6s.

Not valid. The dice is not necessarily unfair. A normal dice could produce the frequencies seen in the chart.

(c) Next time you roll, you will not get a 4.

Not valid. Rolling a dice is a random experiment and you might get 4 the next time you roll.

54. We can toss 10 coins (or a single coin 10 times) to simulate 10 children being born. Let heads = girl, and tails = boy (or vice versa).

Then, repeat that experiment (tossing 10 coins) hundreds of times. Observe how many of those repetitions include 9 heads and one tail, which means getting 9 girls and one boy. The relative frequency is the number of times you got 9 heads and one tail divided by the number of repetitions, and gives you an approximate value for the probability of 9 girls and 1 boy in 10 births.

Statistics

55. Anusha's sampling method is biased. She chose students from her class, which means that all the other students in the college didn't have a chance to be selected in her sample. For a sampling method to be unbiased, every member of the population has to have an equal chance of being selected in the sample. (Her method would work if she was only studying the students in her class.)

56. Four people are running for mayor in a town of about 20 000 people. Three polls were conducted, each time asking 150 people who they would vote for. The table shows the results.

	Mabhena	Matanzima	Swanepoel	Smith	Totals
Poll 1	58	19	61	12	150
Poll 2	68	17	56	9	150
Poll 3	65	22	53	10	150

a. Based on the polls, we can predict Mabhena to be the winner of the election. He is leading in two of the three polls.

b. To estimate how many votes Swanepoel will get, use the average percentage of votes he got in the three polls. You can calculate that as ((61 + 56 + 53) ÷ 3)/150 or as (61/150 + 56/150 + 53/150) ÷ 3. Either way, you will get 37,78%. This gives us the estimate that he would get 0,3778 · 8500 ≈ 3200 votes in the actual election.

c. We will gauge how much off the estimate of 3 200 votes is by using the individual poll results.
Based on poll 1, we would estimate Swanepoel to get (61/150) · 8500 ≈ 3460 votes.
Based on poll 2, we would estimate Swanepoel to get (56/150) · 8500 ≈ 3170 votes.
Based on poll 3, we would estimate Swanepoel to get (53/150) · 8500 ≈ 3000 votes.

Looking at the highest and lowest numbers (3 000 and 3 460), we can gauge that our estimate of 3 200 votes might be off by a few hundred votes.

57. The total number of people Mfanafuthi surveyed is 45 + 57 + 18 = 120. Of those, 45/120 = 37,5% support building the highway.

This gives us the estimate that 0,375 · 2120 = 795 ≈ 800 households in the community would support building the highway.

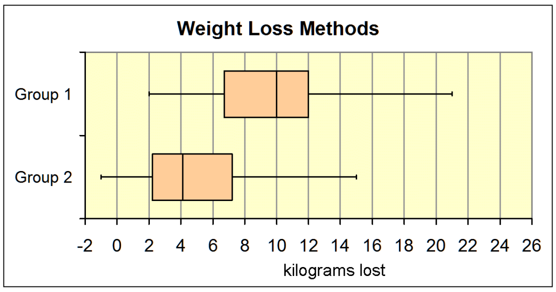
Opinion	Number
Support the highway	45
Do not support it	57
No opinion	18

58. a. Group 1 appears to have lost more weight.

b. Group 1 appears to have a greater variability in the amount of weight lost.

c. The person gained 1 kg.

d. Yes, the method used with group 1 is significantly better than the other.



The median weight loss for Group 1 is 10 kg whereas for Group 2 only a little over 4 kg. The difference in the medians is about 6 kg. The interquartile ranges are about 5 kg for both Groups. The difference in the medians (about 6 kg) is more than one time the interquartile range (about 5 kg), which shos us that the difference is significant.