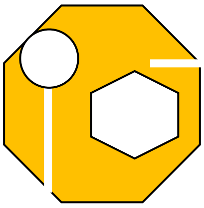
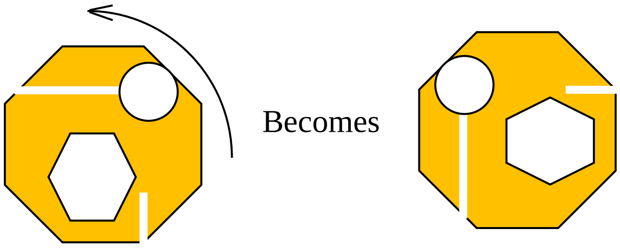
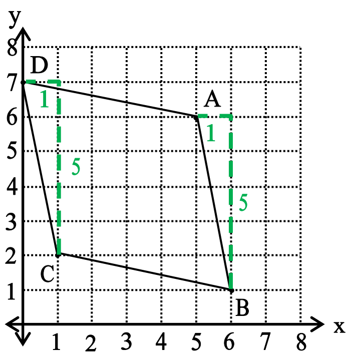
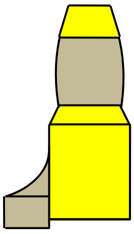
YEAR 9 – PAPER ONE
ANSWERS AND LEARNING STATEMENT

NON CALCULATOR

	ANSWER	WORKED SOLUTION	LEARNING STATEMENT A student can
1	2 hours 47 minutes	From 10:25 am to 11am there are 35 minutes and from 11 am to 1:12 pm there are 2 hours and 12 minutes. So the total time is 2 hours 12 minutes + 35 minutes = 2 hours 47 minutes Hence, Jim played football for 2 hours 47 minutes.	solve problems involving duration, including using 12- and 24-hour time within a single time zone. (ACMMG199)
2	$\frac{3}{8}$	There are 8 equally sized sections that the arrow may stop on. Only 3 of these sections would result in Sara winning a holiday. Hence, the chance of Sara winning a holiday is $\frac{3}{8}$.	assign probabilities to the outcomes of events and determine probabilities for events. (ACMSP168)
3	80%	There are 5 cards altogether; four of these show yellow birds. Therefore $\frac{4}{5}$ show yellow birds. $\frac{4}{5}$ written as a percentage is $\frac{4}{5} \times 100 = 80\%$	find percentages of quantities and express one quantity as a percentage of another, with and without digital technologies. (ACMNA158)
4	7	There are six scores in this dot plot, so the average of the third and fourth scores will be the median. $\frac{7+7}{2} = \frac{14}{2} = 7$	calculate mean, median, mode and range for sets of data. Also, interpret these statistics in the context of data. (ACMSP171)

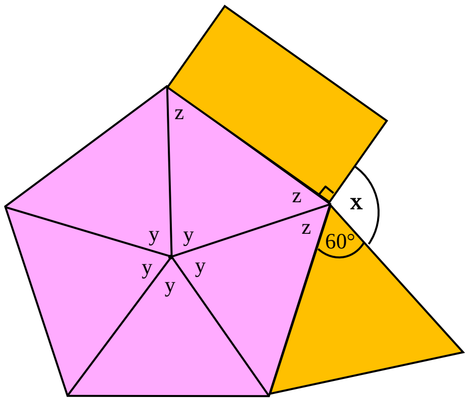
5			describe translations, reflections in an axis, and rotations of multiples of 90° on the Cartesian plane using coordinates. Also, identify line and rotational symmetries. (ACMMG181)
6	$90	Christine had $35 after buying a watch for $10, so she must have had $45 before she bought the watch. This $45 is half of the money that she started with, the other half she spent on the toy car, so she must have started with 2 × $45 = $90	express one quantity as a fraction of another, with and without the use of digital technologies. (ACMNA155)
7	60%	John successfully converted 12 out of 20 attempts. To find this as a percentage we write $\frac{12}{20} \times 100 = 60\%$	find percentages of quantities and express one quantity as a percentage of another, with and without digital technologies. (ACMNA158)
8	3.12 km	The distance from the beach to Tom's house is the average distance so it is $\frac{2.34 + 3.9}{2} = 3.12$ km. Alternative method: The distance from Pete's house to Colin's house is 3.9 – 2.34 = 1.56 km. The distance from Pete's house to Tom's house is 1.56 ÷ 2 =0.78 km. Hence ,the distance from the beach to Tom's house is 2.34 + 0.78 = 3.12 km.	multiply and divide fractions and decimals using efficient written strategies and digital technologies. (ACMNA154)
9	P and R	If the shape was folded along the lines Q or S, it would not fold exactly onto itself. If the shape was folded along the lines P or R, it would fold exactly onto itself, so these are the only lines of symmetry.	describe translations, reflections and rotations of two-dimensional shapes. Also, identify line and rotational symmetries. (ACMMG114)

10	23	Using “order of operations” we must square 3 first, multiply the result by 2 and then finally add 5. So $5 + 2 \times 3^2 = 5 + 2 \times 9$ $= 5 + 18$ $= 23$	carry out the four operations with rational numbers and integers, using efficient mental and written strategies and appropriate digital technologies. (ACMNA183)
11	7th shape	The algebraic rule connecting the number of matchsticks M to the number of shapes S is $M = 8 \times S + 1$, so $57 = 8S + 1$ $56 = 8S$ $7 = S$ Hence, Ronald needs 57 matchsticks to construct the 7th shape.	create algebraic expressions and evaluate them by substituting a given value for each variable. (ACMNA176)
12	5	Range = highest score – lowest score So 32 = 67 – lowest score, This means the lowest score is 67 – 32 = 35. Hence, the missing digit must be 5.	construct and compare a range of data displays including stem-and-leaf plots and dot plots. (ACMSP170)
13	(0, 7)	 The side DC must have the same length and gradient as AB, hence a rise of 5 and a horizontal run of 1, to the left. This means that D is at (0, 7).	find the distance between two points located on a Cartesian plane using a range of strategies, including graphing software. (ACMNA214)
14	–6 (1+ x)	–3 (2– 2x) = – 6 + 6x, not – 6 – 6x –6 (1– x) = – 6 + 6x, not – 6 – 6x –6 (1+ x) = – 6 – 6x 6 (– 1 + x) = – 6 + 6x, not – 6 – 6x	apply the distributive law to the expansion of algebraic expressions and collect like terms where appropriate. (ACMNA213)

15		When viewed from the right, the grey piece at the bottom would be on the left, so the 1st and 4th choices can be eliminated. The second shape shows the lower yellow piece to the right of the main piece, but in the original view they are lined up. So only the 3rd shape is consistent with the original view.	draw different views of prisms and solids formed from combinations of prisms. (ACMMG161)
16	 =  × 4 – 4	Testing the first rule, $3 \times 3 - 1 = 8$ $7 \times 3 - 1 \neq 24$ Testing the second rule, $3 \times 4 - 4 = 8$ $7 \times 4 - 4 = 24$ $11 \times 4 - 4 = 40$ The second rule is always correct and so must be the correct rule. The other rules are not correct after testing.	create algebraic expressions and evaluate them by substituting a given value for each variable. (ACMNA176)
17	$2500	The ratio of the cost of the TV to the fridge is 3:5, then $\frac{3}{8}$ of the total cost was for the TV. So the cost of the TV is $\frac{3}{8} \times \$10\,000 = \$3750$ and the cost of the fridge is $10000 - $3750 = $ 6250. Hence, the fridge cost $6250 − $3750 = $2500 more than the TV.	solve a range of problems involving rates and ratios, with and without digital technologies. (ACMNA188)
18	91	On this diagram, there are 10 divisions from 0 to 70, so each division represents 7 km/h. The arrow is pointing to the mark which is 3 divisions past 70. As 70 + 3 × 7 = 91, so it is indicating a speed of 91 km/h.	use scaled instruments to measure and compare lengths, masses, capacities and temperatures. (ACMMG084)
19	A triangle with the smallest angle being 65°	All triangles have an angle sum of 180°. If the largest angle is 160° the other angles could each be 10°. If the largest angle is 170° the other angles could each be 5°. If the smallest angle is 55° the others could be 55° and 70°. If the smallest angle is 65° then the other two angles should be bigger than 65° this means their angle sum will be more than 180° which is impossible.	demonstrate that the angle sum of a triangle is 180° and use this to find the angle sum of a quadrilateral. (ACMMG166)

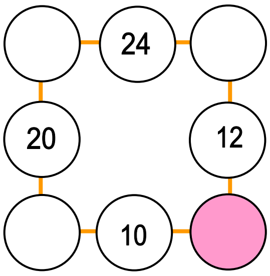
20	60	There are 16 edges on the top face; 8 of them run horizontally across the page and another 8 run obliquely across the page. As the shape is symmetrical, there will be another 16 edges on the lower face. Also, there are 8 vertical edges and 4 pointed ends each with 5 edges. Hence, this solid has 8 + 8 + 16 + 8 + 4 × 5 = 60 edges.	make models of three-dimensional objects and describe key features. (ACMMG063)
21	14 hours	8 × 105 = 840 minutes 840 ÷ 60 = 14 hours	solve problems involving duration, including using 12- and 24-hour time within a single time zone. (ACMMG199)
22	$ 6 000 000	They paid in total $50 + $40 + $30 = $120. So Craig contributed $\frac{30}{120} = \frac{1}{4}$ of the total amount. So Craig should receive $\frac{1}{4} \times$ $ 24 000 000 = $ 6 000 000.	solve a range of problems involving rates and ratios, with and without digital technologies. (ACMNA188)
23	11	L represents the length of a rectangle, so it must be positive. Also, A represents its area, so it must also be a positive number. Hence, L – 10 must also be positive. As L is a whole number, the smallest value it can take is 11.	carry out the four operations with rational numbers and integers, using efficient mental and appropriate digital technologies. (ACMNA183)
24	$15.75 m^3$	Volume of a prism = area of cross section × height. Area of the triangle = $\frac{1}{2} \times 3 \times 2.1 = 3.15\ m^2$ Hence V = $3.15 \times 5 = 15.75\ m^3$	solve problems involving the surface area and volume of right prisms. (ACMMG218)
25	$36 cm^2$	Area of triangle ABC = $\frac{1}{2} \times 12 \times 10 = 60\ cm^2$ Area of triangle DBE = $\frac{1}{2} \times 8 \times 6 = 24\ cm^2$ Hence, the shaded area = 60 – 24 = 36 cm^2	calculate the areas of composite shapes. (ACMMG216)
26	68°F	The graph can be used to find the equation of the line, which can then be used to find the answer. Gradient of the line = $\frac{46.4-32}{8-0} = \frac{14.4}{8} = 1.8$ The line cuts the vertical axis F at 32, hence the equation of the line is F = 1.8 C + 32 F = 1.8 × 20 + 32 F = 36 +32 = 68°F	sketch linear graphs using the coordinates of two points and solve linear equations. (ACMNA215)

27	4	In 15 months James gains $5 \times \$45\,000 = \$\,225000$ In 15 months James spends $3 \times \$60\,000 = \$\,180000$ Hence, in 15 months James saves $45000. So in one month James saves $3000. This means in 12 months or in 1 year James saves $36000. Now, as he saved $144000 over x years then $x = \$144000 \div \$36000 = 4$	solve a range of problems involving rates and ratios, with and without digital technologies. (ACMNA188)
28	26 cups	In the set of cups there are 3 small and 3 large with a total volume of 1800 mL. Dividing by 3 we can see that 1 small cup and 1 large cup have a total volume of 600 mL. As the cups are arranged in an alternating pattern we can divide 7800 mL by 600 mL to calculate the number of pairs of a small and a large cup which are used. As $7800 \div 600 = 78 \div 6 = 13$, so Vanessa filled 13 small and 13 large cups this means she filled 26 cups in total.	carry out the four operations with rational numbers and integers, using efficient mental and written strategies and appropriate digital technologies. (ACMNA183)
29	72	She ate $\frac{1}{4}$ of the lollies in the first week this means she had $\frac{3}{4}$ of the lollies left. She then ate $\frac{1}{2}$ of this $\frac{3}{4}$ in the second week. So she ate $\frac{3}{8}$ of the lollies and had $\frac{3}{4} - \frac{3}{8} = \frac{3}{8}$ of them left. Now 27 represents $\frac{3}{8}$ of the lollies in the full bag, that is $\frac{1}{8}$ is 9 and the whole bag contained $8 \times 9 = 72$ lollies.	carry out the four operations with rational numbers and integers, using efficient mental and written strategies and appropriate digital technologies. (ACMNA183)

30	102^o	 The regular pentagon is made of 5 isosceles triangles. Let each angle at the centre of the regular pentagon be y. so each angle is 360 ÷ 5 = 72^o(angle of revolution at the centre). Let the base angles of any isosceles triangle be z. so 72° + 2z = 180° that is 2z = 108° ∴ z = 54° Now, each angle in the rectangle is 90^o and in the equilateral triangle is 60^o. Hence $90^o + 54^o + 54^o + 60^o + x = 360^o$ (angle of revolution) $258^o + x = 360^o$ x = 102^o	investigate, with and without digital technologies, angles on a straight line, angles at a point and vertically opposite angles. Also, use results to find unknown angles. (ACMMG141)
31	51 cm	As the shapes are similar, NQL is a straight line. Also $\frac{NQ}{NL} = \frac{8}{32} = \frac{1}{4}$ that is NL = 4 NQ = 4 × 17 = 68 cm Therefore QL = 68 – 17 = 51 cm	solve problems using ratio and scale factors in similar figures. (ACMMG221)
32	480 m	Each week Anthony runs 43.68 km = 43680 m. So, each day he runs 43680 ÷ 7 = 6240 m. This means each lap is 6240 ÷ 4 = 1560 m. Now, let AB = x metres, then the perimeter of the lake or one lap is 2x + 4 × 150, which equals 2x + 600. So 2x + 600 = 1560 2x = 960 Hence, x = 480 m	find perimeters and areas of parallelograms, trapeziums, rhombuses and kites. (ACMMG196)

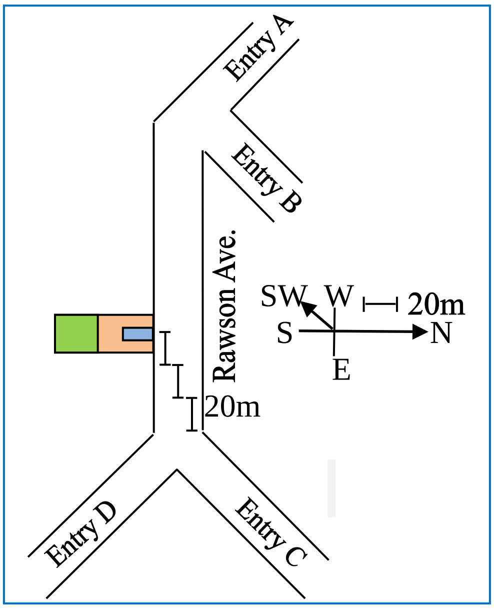
YEAR 9 – PAPER ONE – CALCULATOR ALLOWED

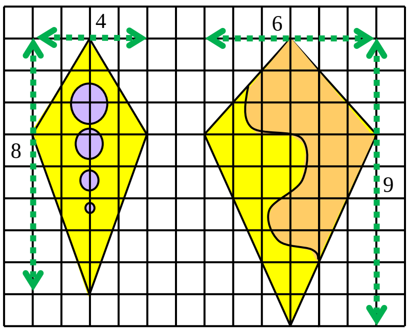
	ANSWER	WORKED SOLUTION	LEARNING STATEMENT A student can
1	50°C	The difference between the temperatures in these two cities was $35° - (-15°) = 50°C$	carry out the four operations with rational numbers and integers, using efficient mental and and appropriate digital technologies. (ACMNA183)
2	37 cm	As the height of each brick is 7 cm then the height of 5 bricks is 5 × 7 = 35 cm. As the height of a layer of mortar is 5 mm = 0.5 cm, then the height of 4 layers would be 4 × 0.5 = 2 cm. Hence, the height of the wall is 35 + 2 = 37 cm.	convert between common metric units of length, mass and capacity. (ACMMG136)
3	13.2 m	On the scale drawing, the length of the model helicopter is 13 – 2 = 11 cm. In this scale 5 cm represents 6 m. So, 1 cm represents 1.2 m. Hence, the real length of the plane is 11× 1.2 = 13.2 m.	solve a range of problems involving rates and ratios, with and without digital technologies. (ACMNA188)
4	42	The ratio of tennis players to basketball players is 7:3. This means $\frac{3}{10}$ of the total number of players play basketball. Hence, $\frac{3}{10} \times 140 = 42$ basketball players.	solve a range of problems involving rates and ratios, with and without digital technologies. (ACMNA188)
5	7	$4.3 \times 3 + 4.3 \times \square = 43$ then $4.3 \times (3 + \square) = 43$ So $3 + \square = 10$. Hence, $\square = 7$ Alternative method $4.3 \times 3 = 12.9$ so $12.9 + 4.3 \times \square = 43$ $4.3 \times \square = 30.1$ $\square = 30.1 \div 4.3$ $\square = 7$	apply the associative, commutative and distributive laws to aid mental and written computation. (ACMNA151)

6	4	Each row or column must have a product of 240.  As 240 ÷ 12 = 20, hence the shaded circle must contain a factor of 20, so it must be 4 or 5. Also, as 240 ÷ 10 = 24 then the shaded circle must contain a factor of 24, hence the shaded circle cannot be 5, so it must contain 4.	select and apply efficient mental and written strategies and appropriate digital technologies to solve problems involving all four operations with whole numbers. (ACMNA123)
7	$468	The rent increased by 4% of $450 which is $18. Hence, the new weekly rent will be $450 + $18 = $468.	find percentages of quantities and express one quantity as a percentage of another, with and without digital technologies. (ACMNA158)
8	25%	The total number of students surveyed is 45 + 20 + 15 = 80 Hence, the percentage of students that selected Navy Blue is $\frac{20}{80} \times 100 = 25\%$.	find percentages of quantities and express one quantity as a percentage of another, with and without digital technologies. (ACMNA158)
9	190	Let the number of CD's Samantha sold in her first week be x, so she sold in the 2nd week x + 40, in the 3rd week x + 80 and in her 4th week x+ 120. So $x + x + 40 + x + 80 + x + 120 = 1000$ $4x + 240 = 1000$ $4x = 760$ $x = 190$ Hence, Samantha sold 190 CD's in her first week.	solve linear equations using algebraic and graphical techniques. Also, verify solutions by substitution. (ACMNA194)

10	$2.70	To buy the 3 more balls timothy needs \$2.40 +\$5.70= \$8.10 Hence, each golf ball costs \$8.10 ÷ 3 = \$2.70. Alternative method Let the cost of 1 golf ball be x, so Timothy has 12x – \$2.40, which is the same amount as 9x + \$5.70 Hence $12x - 2.40 = 9x + 5.70$ $3x - 2.40 = 5.70$ $3x = 8.10$ $x = 2.70$ So each golf ball costs \$2.70	solve linear equations using algebraic and graphical techniques. Also, verify solutions by substitution. (ACMNA194)
11	17	Let the number of horses be H, so the number of cows would be H + 23. so $H + H + 23 = 57$ $2H = 57 - 23$ $2H = 34$ $H = 17$ Hence, there are 17 horses in the farm.	solve linear equations using algebraic and graphical techniques. Also, verify solutions by substitution. (ACMNA194)
12	6 240 000 tonnes	The total mass of carbon dioxide produced last year is 1 200 000 × 5.2 = 6 240 000 tonnes.	multiply and divide fractions and decimals using efficient written strategies and digital technologies. (ACMNA154)
13	$\frac{1}{2}$	As her the first card was 3 then to get a sum more than 8 she needs to select 6, 7, 8, 9 or10. So she has 5 out 10 chances. Hence, the probability is $\frac{5}{10} = \frac{1}{2}$.	list all outcomes for two-step chance experiments, both with and without replacement using tree diagrams or arrays. Also, assign probabilities to outcomes and determine probabilities for events. (ACMSP225)

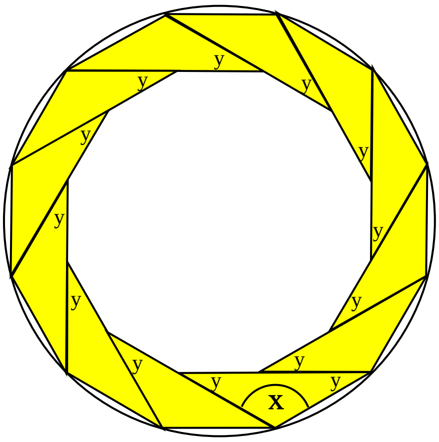
14	50 km/h	1hour and 6 minutes is 66 minutes. Hence, his average speed is $55 \div 66 \times 60 = 50$ km/h Alternative method 6 minutes is $\frac{6}{60} = 0.1$ hour. So, 1hour and 6 minutes is 1.1 hours. Hence, his average speed is 55÷ 1.1= 50 km/h.	solve a range of problems involving rates and ratios, with and without digital technologies. (ACMNA188)
15	2.9 cm	From the given information, 2πb = 18 So b = 18 ÷ 2π b = 2.8647… Hence, b = 2.9 cm correct to 1 decimal place.	solve linear equations using algebraic and graphical techniques. Also, verify solutions by substitution. (ACMNA194)
16	8	Reading from the graph, juice stored at 5°C has a life of 5 days. Juice stored at 3°C has a life of 13 days Hence, the life of this carton was shortened by 13 – 5 = 8 days.	graph simple non-linear relations with and without the use of digital technologies and solve simple related equations. (ACMNA296)
17	16.2	If 2000 bricks have a mass of 5.4 tonnes, then 1000 bricks will have a mass of 2.7 tonnes. Hence, the mass of 6000 bricks is $6 \times 2.7 =$ 16.2 tonnes.	solve a range of problems involving rates and ratios, with and without digital technologies. (ACMNA188)
18	2 : 5	The ratio of black to other colours is 3:7, and there are 49 cars of other colours so there are 49 ÷ 7 × 3 = 21 black cars. After they sell 1 black car and buy 1 red car, the new ratio is 20 : 50 which is 2 : 5.	solve a range of problems involving rates and ratios, with and without digital technologies. (ACMNA188)

19	Mark	When we arrange the five members of the group in ascending order according to their ages, we get: Adam, Nick, Mark, Harrison and Bradley. Hence, Mark has the median or the middle age.	calculate mean, median, mode and range for sets of data. Also, interpret these statistics in the context of data. (ACMSP171)
20	$750	The home loan represents 40% of her salary, which is $300. Hence, 10% is $300 ÷ 4 = $75 Therefore 100 % of her salary is worth $750.	solve problems involving the use of percentages, including percentage increases and decreases, with and without digital technologies. (ACMNA187)
21	Entry C	 Using the scale provided, the junction of Entry C and Entry D is 60m from Charles' house, so he must be walking along Entry C or Entry D. As he is walking South West, he must be walking along Entry C.	use a grid reference system to describe locations. Also, describe routes using landmarks and directional language. (ACMMG113)
22	2575 L	The mean number of containers sold is calculated as Mean = $\frac{510+490+520+540}{4} = \frac{2060}{4}$ = 515 containers. As each container holds 5 L of milk, the mean number of litres is 515 × 5 = 2575 L.	calculate mean, median, mode and range for sets of data. Also, interpret these statistics in the context of data. (ACMSP171)

23	27 cm^3	When the cube is glued to the rectangular prism, one of its faces will cover an area of the same size on the surface of the rectangular prism. This means the surface area of the new shape will be more than the surface area of the rectangular prism by only the area of 4 faces of the cube. Now, the increase in the surface area is 282 – 246 = 36 cm^2. So the area of 4 faces of the cube is 36 cm^2, then the area of each face is 9 cm^2. This means the length of each edge is 3 cm and hence the cube has a volume of 3^3 = 27 cm^3.	solve problems involving the surface area and volume of right prisms. (ACMMG218)
24	$ 6970	Jacob saved $1530, which was 18% of the full price. So 18% is $1530 then 1% is $85. Hence, 100% or full price is $8500. But Jacob saved $1530 so he paid $8500 – $1530 = $6970.	solve problems involving the use of percentages, including percentage increases and decreases, with and without digital technologies. (ACMNA187)
25	64 cm^2	 The area of a kite is a half of the product of its diagonals, that is $A = \frac{1}{2}xy$. The area of the larger kite is $\frac{1}{2} \times 6 \times 9 = 27$ small squares. The area of the smaller kite is $\frac{1}{2} \times 4 \times 8 = 16$ small squares. So the larger kite has $27 - 16 = 11$ small squares more than the area of the small kite. But the area of the larger kite is 44 cm^2 more than the area of the smaller kite then 11 small squares $= 44\ cm^2$, so one small square is 4 cm^2. Hence, the area of the small kite is 16× 4=64 cm^2.	find perimeters and areas of parallelograms, trapeziums, rhombuses and kites. (ACMMG196)

<table>
<tr>
<td>26</td>
<td>3 seconds</td>
<td>The formula to calculate the time for Mathew to reach a certain height h above the water is
$t = \sqrt{10 - 0.2h}$
So the time taken for Mathew to reach a height of 5 m above the water is $t = \sqrt{10 - 0.2 \times 5}$ seconds
$= \sqrt{10 - 1}$ seconds
$= \sqrt{9}$ seconds
= 3 seconds</td>
<td>graph simple non-linear relations with and without the use of digital technologies and solve simple related equations. (ACMNA296)</td>
</tr>
<tr>
<td>27</td>
<td>10</td>
<td>By trial and error as shown in the table.
<table>
<tr><td>Number of night shifts</td><td>Number of midday shifts</td><td>Pay in the fortnight</td><td></td></tr>
<tr><td>13</td><td>1</td><td>13 × $110 + 1 × $80 = $1510</td><td>over $1460</td></tr>
<tr><td>12</td><td>2</td><td>12 × $110 + 2 × $80 = $1480</td><td>over $1460</td></tr>
<tr><td>11</td><td>3</td><td>11 × $110 + 3 × $80 = $1450</td><td>valid</td></tr>
<tr><td>10</td><td>4</td><td>10 × $110 + 4 × $80 = $1420</td><td>valid</td></tr>
<tr><td>9</td><td>5</td><td>9 × $110 + 5 × $80 = $1390</td><td>below $1400</td></tr>
</table>
Hence, from the table, the least number of night shifts Jasmine needs to work to earn between $1400 and $1460 is 10.

Alternative method
Let N be the number of night shifts Jasmine works this fortnight, so the number of midday shifts she works must be 14 – N.
If she works N midnight shift her pay will be $110×N.
Her total pay for the fortnight will be
110N + 80(14 – N) = 110N – 80N + 1120.
= 30N + 1120
Jasmine wants to earn more than $1400
$30N + 1120 \geq 1400$
$30N \geq 280$
$N \geq 9.333$
As N must be a whole number the lowest value for N is 10.</td>
<td>create algebraic expressions and evaluate them by substituting a given value for each variable. (ACMNA176)</td>
</tr>
</table>

28	4×10^8 km	The average distance between Earth and Mars is equal to $\dfrac{longest\ distance + shortest\ distance}{2}$ So $\quad 2.28\times 10^8 = \dfrac{LD + 5.6\times10^7}{2}$ $4.56\times 10^8 = \text{LD} + 5.6\times 10^7$ Hence $\quad \text{LD} = 4.56\times 10^8 - 5.6\times 10^7$ $\text{LD} = 4\times 10^8$ km.	create algebraic expressions and evaluate them by substituting a given value for each variable. (ACMNA176)
29	120^o	 Let each of the base angles in these isosceles triangles be y. The exterior angle sum of a polygon is 360^o. Or we can say that the triangles are sliding together so that all of the angles y form the angles at a point, and their sum is 360^o. Hence $12y = 360^o$ $y = 30^o$ Now $\quad x + 2y = 180^o$ (angle sum of a triangle) $x + 60^o = 180^o$ $x = 120^o$	create algebraic expressions and evaluate them by substituting a given value for each variable. (ACMNA176)
30	221 cm	There is a linear relationship between the number of dominoes (D) and the length (L) of the pattern. This relationship will follow the rule $L = m D + b$. The value of m is found by $(88 - 50)\div(9-5)$, so $m = 38 \div 4 = 9.5$ and $L = 9.5D + b$ Now, when $D = 5$, $L = 50$, so $50 = 9.5\times5 + b$ $50 = 47.5 + b$ $2.5 = b$ So the equation is $L = 9.5 D + 2.5$, hence when $D = 23$, $\quad L = 9.5\times 23 + 2.5$ $L = 221$ cm	create algebraic expressions and evaluate them by substituting a given value for each variable. (ACMNA176)

31	4 cm	The volume of one triangular prism block is $1728 \div 72 = 24$ cm^3. But the volume of one triangular prism block is $\frac{1}{2} \times x \times (x+2) \times 2 = x \times (x+2)$ Therefore $x \times (x+2) = 24$ Now , by trial and error we can see that $4 \times 6 = 24$ this means that $x = 4$ cm.	create algebraic expressions and evaluate them by substituting a given value for each variable. (ACMNA176)
32	40 cm^2	The area of the largest rhombus is found using $A = \frac{1}{2} \times 8 \times 13.5 = 54\ cm^2$ and the area of next smaller rhombuses are respectively: $18 cm^2$, $6\ cm^2\ and\ 2\ cm^2$. Now, the area of the outer shaded shape is $54 - 18 = 36\ cm^2$ and the area of the inner shaded shape is $6 - 2 = 4\ cm^2$. Hence, the total shaded area is $36 + 4 = 40\ cm^2$.	calculate the areas of composite shapes. (ACMMG216)