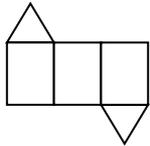
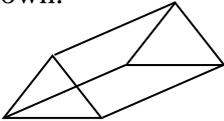
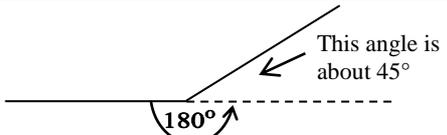
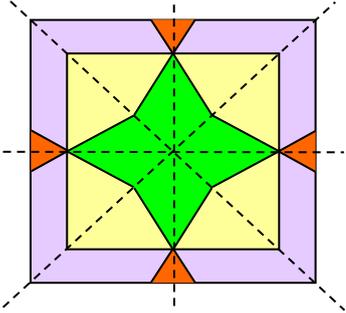
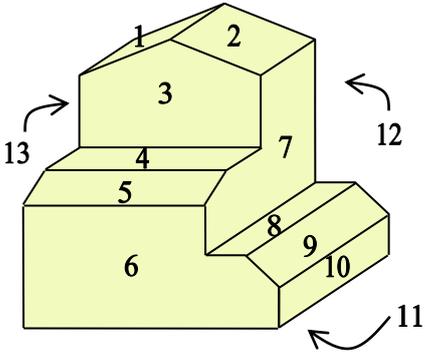
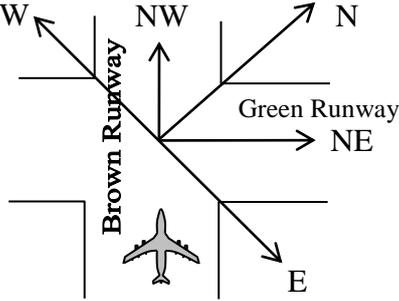


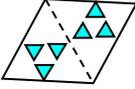
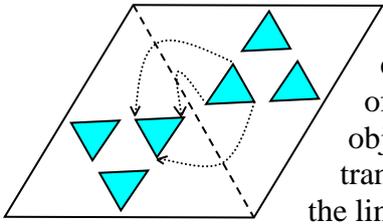
**YEAR 7 – PAPER FOUR**  
**ANSWERS AND LEARNING STATEMENT**  
**NON CALCULATOR**

QUESTION	ANSWER	WORKED SOLUTION	LEARNING STATEMENT A student can	NSW SYLLABUS
1	(2, 3) and (3, 7)	The coordinates of the lake are (2, 3) and the coordinates of Greenhill are (3, 7).	read, plot and name ordered pairs on the number plane.	PAS 4.5
2	417	If 836 people visited the aquarium on Saturday and Sunday, and 419 of them visited on Saturday, then the number of visitors on Sunday was $836 - 419 = 417$ .	select and apply appropriate strategies for addition and subtraction involving 2, 3 and 4 digit numbers.	NS 3.2
3	$\frac{1}{5}$	From this set of 5 cards, only the card that has a 5 written on it shows an odd number less than 10. Hence the probability of selecting this card is $\frac{1}{5}$ .	determine the probability of a simple event.	NS 4.4
4		Only this net folds to make a triangular prism, as shown. 	recognise whether a diagram is a net of a particular solid.	SGS 4.1
5	8	$24 \div 4 = 6$ then $48 \div \square = 6$ As $48 \div 8 = 6$ then the missing number is 8.	use mental and informal written strategies for multiplication and division.	NS 2.3
6	$210^\circ$	 As we can see in the diagram the required angle is more than $180^\circ$ but less than $180^\circ + 45^\circ = 225^\circ$ . Hence, the best estimate from the four options provided is $210^\circ$ .	estimate and measure angles in degrees.	SGS3.2b
7	16	For each of the four options, multiply by 2 then divide by 4 to see which of them gives 8 as an answer. It can be seen that only when 16 is multiplied by 2, and then divided by 4 we get 8 as required.	find solutions to a question involving mixed operations.	NS 3.3

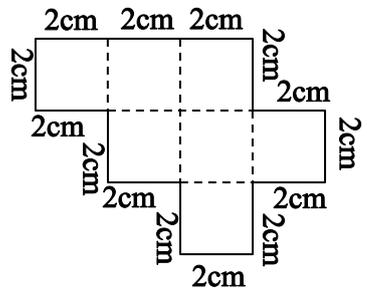
8		7 can go into 21 exactly three times with no remainder so the triangle represents 3. As 7 goes into <input type="text"/> zero times and it goes into the number <input type="text"/> 8 four times, so <input type="text"/> represents 2.	divide a number with 3 or more digits by a single digit divisor.	NS 3.3
9	19	The number of squares is equal to three times the number of hexagons plus 1. In the 6 <sup>th</sup> shape there are 6 hexagons so the number of squares $3 \times 6 + 1 = 19$ squares.	determine a rule for a geometric pattern and use the rule to calculate further terms.	PAS 4.2
10	1 cm represents 4m.	5cm represents 20m, then by dividing each measurement by 5 the result is 1 cm represents 4m.	simplify a ratio.	NS 4.3
11	$\frac{5}{9}$	The fraction of the lollies in the bag that are not lemon is $\frac{1}{3} + \frac{1}{9} = \frac{3}{9} + \frac{1}{9} = \frac{4}{9}$ Hence, the fraction of the lollies in the bag that are lemon is $1 - \frac{4}{9} = \frac{5}{9}$	add and subtract simple fractions where one denominator is a multiple of the other.	NS 3.4
12	12.88 kg	Since 280 g = 0.28 kg, then the total mass of the three animals is $7.4 + 0.28 + 5.2 = 12.88$ kg.	convert between kilograms and grams.	MS 3.4
13	24	If each bottle is \$2.50, then for \$10 you could buy 4 bottles. Hence, for \$60 you could buy 24 bottles.	select and apply appropriate strategies for multiplication and division.	NS 3.3
14	2 years and 7 months	From 5 years and 2 months subtract 2 years, the result will be 3 years and 2 months. If a further 7 months is subtracted, the result will be 2 years and 7 months.	perform calculations of time that involve mixed units.	MS 4.3
15	4	There are four axes of symmetry as shown. 	find all lines of symmetry for a two dimensional shape.	SGS 2.2a

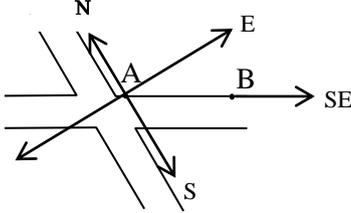
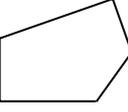
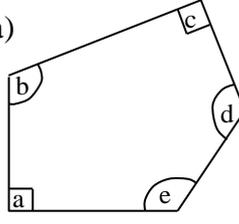
16	277	He gave his friends $6 \times 14 = 84$ mangoes. As he kept 193 mangoes for himself, this means he picked $84 + 193 = 277$ mangoes.	find solutions to a question involving mixed operations.	NS 3.3
17	0.087	To divide a number by 100, move the decimal point two places to the left as shown. 	use mental strategies to multiply or divide a number by 100 or 10.	NS 3.3
18	$\frac{5}{200}$	$2\frac{1}{2}\% = \frac{5}{2}\%$ $= \frac{5}{2} \div 100 = \frac{5}{2} \times \frac{1}{100}$ $= \frac{5}{200}$	convert percentages to fractions and decimals.	NS 4.3
19	$60 \div 10 >$ $40 \div 4$	<p>The first option is <math>15 + 8 &lt; 8 \times 4</math> by simplifying we get <math>23 &lt; 32</math> which is correct.</p> <p>The second option is <math>70 - 10 &lt; 9 \times 7</math> by simplifying we get <math>60 &lt; 63</math> which is correct.</p> <p>The third option is <math>60 \div 12 &gt; 8 \div 4</math> by simplifying we get <math>5 &gt; 2</math> which is correct.</p> <p>The fourth option is <math>60 \div 10 &gt; 40 \div 4</math> by simplifying we get <math>6 &gt; 10</math> which is incorrect.</p> <p>Hence, the fourth option is the answer.</p>	find solutions to a question involving mixed operations.	NS 3.3
20	$24 \times 30$	<p>Since <math>24 \times 18 + 24 \times 12 = 24 \times (18 + 12)</math>  <math>= 24 \times 30</math></p> <p>Hence, <math>24 \times 30</math> is a different way to calculate Rachel party's cost.</p> <p>Alternatively, by calculating each of the four options we can see that only <math>24 \times 30</math> gives the cost of the party.</p>	apply a range of mental strategies to aid computation.	NS 4.1
21	6 <sup>th</sup> of September	<p>The following Saturdays after Saturday the 9<sup>th</sup> of August are: the 16<sup>th</sup>, the 23<sup>rd</sup> and the 30<sup>th</sup> of August.</p> <p>So the 31<sup>st</sup> of August is a Sunday.</p> <p>Hence, the first Saturday of September is 6 days later, which is the 6<sup>th</sup> of September.</p>	read and interpret timetables, timelines and calendars.	MS 2.5
22	40%	<p>The total profit made by the shop was <math>\\$550 + \\$800 + \\$650 = \\$2000</math></p> <p>Hence, the percentage earned on Saturday was</p> $\frac{800}{2000} \times 100 = 40\%$	express one quantity as a percentage of another.	NS 4.3

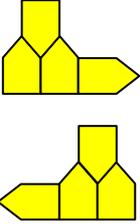
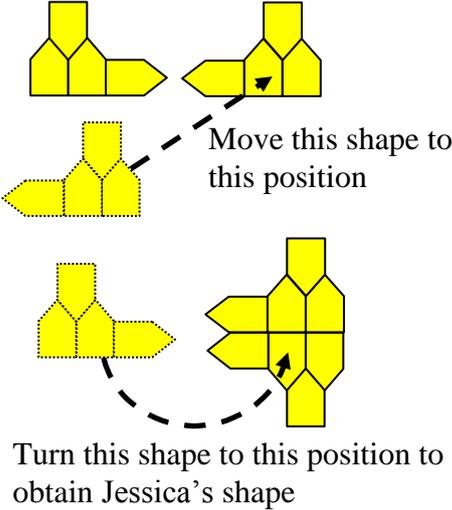
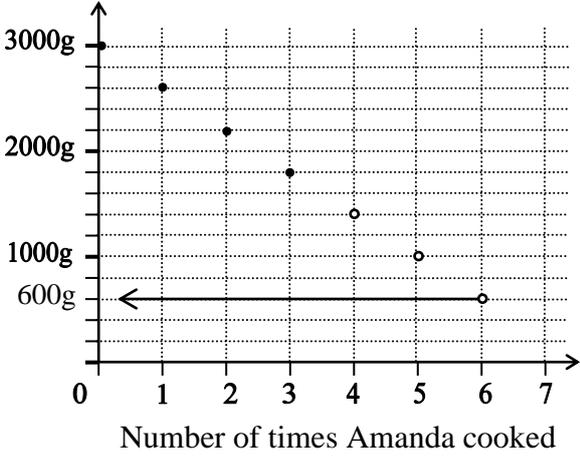
23	13		use the terms 'faces', 'edges' and 'corners' to describe three dimensional objects.	SGS 1.1
24	north-east		use a variety of mapping skills.	SGS 3.3
25	3120°	<p>From 7:20am to 3:20pm is 8 hours and from 3:20pm to 4pm is 40 minutes so the time from 7:20am to 4pm is 8 hours and 40 minutes.</p> <p>This is the same as</p> $8\frac{40}{60} = 8\frac{2}{3} \text{ hours}$ <p>As for each hour the minute hand will make complete revolution of 360° then the angle moved by the minute hand is</p> $8\frac{2}{3} \times 360^\circ = \frac{26}{3} \times 360^\circ$ $= 26 \times 120^\circ = 3120^\circ$	estimate and measure angles in degrees.	SGS3.2b
26	6 weeks	<p>The box contains <math>160 \times 15 = 2400\text{g}</math>.</p> <p>As Karen uses 200g per wash, then the number of wash she can do using this box is</p> $2400 \div 200 = 12$ <p>Since she does 2 washes per week the box of powder will last <math>12 \div 2 = 6</math> weeks.</p>	select and apply appropriate strategies for multiplication and division.	NS 3.3

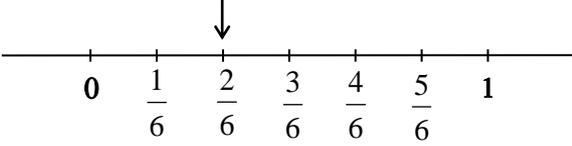
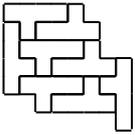
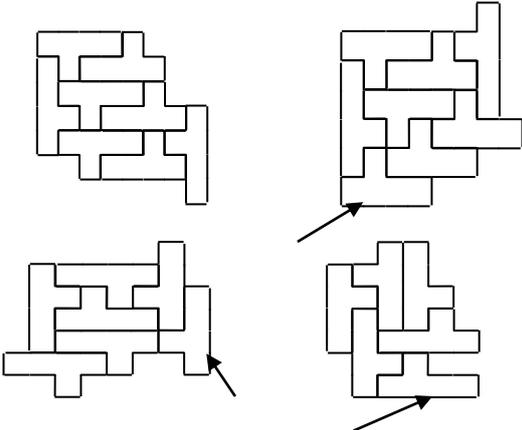
27		 <p>In the reflection each point of the original object will be translated across the line of reflection, as shown only in this image.</p>	describe designs in terms of reflecting, translating and rotating.	SGS 2.2a
28	23000g	<p>By converting each of the four options to kg we get  <math>0.019 \text{ t} = 19 \text{ kg}</math>  <math>0.02 \text{ t} = 20 \text{ kg}</math>,  21 kg is already in kg  and <math>23000 \text{ g} = 23 \text{ kg}</math>.  Hence, 23000 g is the heaviest.</p>	convert between kilograms and tonnes.	MS 3.4
29	6	<p>The money he still needs to buy this laptop is <math>\\$1860 - \\$900 = \\$960</math>.  Hence, the number of weeks he needs to be able to buy this laptop is <math>\\$960 \div \\$160 = 6</math> weeks.</p>	find solutions to a question involving mixed operations.	NS 3.3
30	7	<p>The lockers with prime numbers are 2, 3, 5, 7, 11, 13, 17, 19 and 23.  The lockers with numbers that are factors of 18 are 1, 2, 3, 6, 9, 18.  The lockers with numbers that are factors of 24 are 1, 2, 3, 4, 6, 8, 12, 24.  By crossing these numbers out we can see that the lockers still left are 10, 14, 15, 16, 20, 21 and 22.  Hence, there are only 7 lockers available for Wendy.</p>	<p>determine factors for a given number.  apply knowledge of multiplication and division to solve a word problem.</p>	NS 2.3 NS 3.3
31	\$19.00	<p>3 burgers and 2 chips will cost \$24.50.  2 burgers and 1 chips will cost \$15.  This indicate that 1 burger and 1 chips will cost <math>\\$24.50 - \\$15 = \\$9.50</math>.  Hence, 2 burgers and 2 chips will cost <math>2 \times \\$9.50 = \\$19.00</math></p>	find solutions to a question involving mixed operations.	NS 3.3
32	75°	<p><math>\angle ABE = 60^\circ</math> (angle in equilateral <math>\triangle ABE</math>)  <math>\angle ABC = 90^\circ</math> (angle in square ABCD)  <math>\therefore \angle CBE = 30^\circ</math> (complementary angles)  <math>AB = BE</math> (equal sides of equilateral <math>\triangle ABE</math>)  <math>AB = BC</math> (equal sides of square ABCD)  <math>\therefore BE = BC</math>  <math>\therefore \triangle EBC</math> is isosceles (two equal sides)  <math>2 \times \angle ECB + 30^\circ = 180^\circ</math>  (angle sum of <math>\triangle EBC</math>)  <math>2 \times \angle ECB = 150^\circ</math>  <math>\angle ECB = 75^\circ</math></p>	use angle relationships to find unknown angles in diagrams.	SGS 4.2

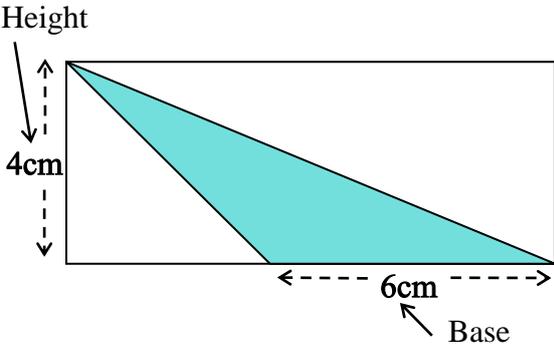
**YEAR 7 – PAPER FOUR – CALCULATOR ALLOWED**

QUESTION	ANSWER	WORKED SOLUTION	LEARNING STATEMENT A student can	NSW SYLLABUS
1	Teenage Witch	On Saturday from 4:00pm until 4:30pm, the program showing is Teenage Witch. This means at 4:20 pm on Saturday the program showing is Teenage Witch.	read and interpret timetables, timelines and calendars.	MS 2.5
2	1	The number of black cars parked during these 3 hours was $2 + 5 + 4 = 11$ , while the number of red cars was $6 + 4 + 2 = 12$ . Hence there was 1 more red car than the black cars.	interpret information presented in simple tables.	DS 2.1
3	86 000	85614 is more than 85500 so 85 614 will be rounded up to 86 000.	round numbers to the nearest ten, hundred or thousand.	NS 2.1
4	50 cm	The length of a newborn baby would usually be less than 60cm which means 50cm is the best answer.	estimate, measure, compare and record lengths, distances and perimeters.	MS 2.1
5	28 cm	The perimeter of this shape is $2 \times 14 = 28$ cm 	find the perimeter of a simple composite shape.	MS 4.1
6	\$25.60	The cost of tulips was: $6 \times \$1.20 = \$7.20$ The cost of roses was: $8 \times \$2.30 = \$18.40$ The total cost of the flowers was $\$7.20 + \$18.40 = \$25.60$	use rates to solve problems involving scale drawings.	NS 4.3
7	$65^\circ$	$AB = AC$ (given) $\therefore \triangle ABC$ is isosceles (two equal sides) $\therefore \angle BCA = x$ (base angles of isosceles $\triangle ABC$ are equal) $2x + 50 = 180^\circ$ ( angle sum of $\triangle ABC$ ) $2x = 130^\circ \therefore x = 130^\circ \div 2 = 65^\circ$	classify, construct and determine the properties of triangles and quadrilaterals.	SGS 4.3

8	South East	 <p>When Adrian is walking from A to B he is heading South East.</p>	determine the directions NE, NW, SE and SW given one of the directions.	SGS 2.3
9	84	<p>The number of cars sold in week 1 was <math>70 + 82 + 85 = 237</math>.  Therefore, the number of cars sold in week 2 was <math>237 + 7 = 244</math>.  Hence, the number of cars sold on Saturday was <math>244 - (86 + 74) = 84</math></p>	interpret information presented in simple tables.	DS 2.1
10	84	<p>Since the average number of cars sold on Fridays is 78, then the total number of cars sold on these four Fridays is <math>4 \times 78 = 312</math>.  Hence, the number of cars sold on the 4<sup>th</sup> Friday is <math>312 - (82 + 74 + 72) = 84</math></p>	find measures of location for a small set of scores.	DS 4.2
11		<p>Out of the four shapes in the four options, only this shape has two right angles at (a) and (c) and three obtuse angles at (b), (d) and (e) as shown.</p> 	measure, construct and classify angles.	SGS3.2b
12	an octagonal prism	<p>The cross section on the top of this shape is an octagon as it has 8 sides.  Each cross section that is parallel to this octagon has exactly the same size and shape. Hence, this shape is an octagonal prism.</p>	name, describe, sort, make and sketch prisms, pyramids, cylinders, cones and spheres.	SGS 2.1
13	25 kg and 550 g	<p>Each bag contain <math>1022 \div 40 = 25.55</math> kg.  This is the same as 25 kg and 550 g</p>	select and apply appropriate strategies for multiplication and division.	NS 3.3

14		 <p>None of other three options can give the required shape by only moving or turning.</p>	describe designs in terms of reflecting, translating and rotating.	SGS 2.2a
15	105	<p>30% of the pages is <math>\frac{30}{100} \times 320 = 96</math> pages.</p> <p>40% of the pages is <math>\frac{40}{100} \times 320 = 128</math> pages.</p> <p>Therefore, Kevin read between 96 pages and 128 pages.</p> <p>Hence, he read 105 pages as this is the only option between 96 and 128.</p>	calculate the percentage of a quantity.	NS 4.3
16	$\frac{1}{4}$	<p>From the diagram it can be seen that <math>\frac{4}{12} = \frac{1}{3}</math> so <math>\frac{7}{12} - \frac{1}{3} = \frac{7}{12} - \frac{4}{12} = \frac{3}{12} = \frac{1}{4}</math></p> <p>Alternatively, a calculator may be used to determine the answer.</p>	adding and subtracting simple fractions where one denominator is a multiple of the other.	NS 3.4
17	600g	<p>By continuing the graph we can see that the mass of rice remaining in the bag after she cooked 6 times is 600g as shown.</p> 	calculate rates from given information.	NS 4.3

18	357 m <sup>2</sup>	<p>The area of David's backyard is</p> $28 \times 12 \frac{3}{4} = 357 \text{ m}^2$	select and use appropriate units to calculate the area of squares and rectangles.	MS 3.2
19	3 strawberry lollies and 6 lemon lollies	 <p>The arrow indicates that the probability of selecting a strawberry lolly is 2 out of 6, so one third of the lollies are strawberry. The only bag with a third being strawberry is the bag containing 3 strawberry lollies and 6 lemon lollies.</p>	simplify ratios.	NS 4.3
20		<p>As the pattern is created using a stamp the image cannot be flipped. An incorrect piece is indicated in the three patterns which could not be made.</p> 	make tessellating designs by rotating and translating.	NS 4.3
21	\$500 + (\$25 × number of guests)	<p>The first two options are correct for the cost being \$500 when the number of guests is 0. Only the first option is correct for the cost being \$3000 when the number of guests is 100.</p>	determine a rule in words to describe a pattern in a table or a graph.	PAS 4.2
22	77	<p>1001 = 7 × 11 × 13 and 1309 = 7 × 11 × 17 Hence, the highest common factor of 1001 and 1309 is 7 × 11 = 77.</p>	determine factors for a given number.	NS 2.3 Unit 2

23	12cm <sup>2</sup>	 <p>The area of the triangle is</p> $\frac{1}{2} \times 6 \times 4 = 12\text{cm}^2$	find the relationship between the base, perpendicular height and area of a triangle.	MS 3.2
24	225mL	<p>James drank <math>\frac{2}{5}</math> of the juice then <math>\frac{3}{5}</math> remained in the cup. Hence, the amount of juice remaining is</p> $\frac{3}{5} \times 375 = 225\text{mL}$	calculate a fraction, decimal or percentage of a quantity.	NS 4.3
25	2400	<p>From the table we can notice that for every 5 minutes, the words still to be typed are decreasing by 300. For example, <math>5100 - 4800 = 300</math>, <math>4800 - 4500 = 300</math> and so on. As from 20 minutes to 50 minutes there are 6 lots of 5 minutes, the words still to be typed will decrease in this time by <math>6 \times 300 = 1800</math> words. Hence, the words still to be typed after 50 minutes are <math>4200 - 1800 = 2400</math>.</p>	calculate rates from given information.	NS 4.3
26	Friday	<p>The total number of visitors in these four days was <math>350 + 300 + 400 + 450 = 1500</math>. As 1 out of 5 of this total is</p> $\frac{1}{5} \times 1500 = 300$ <p>then Friday is the correct answer.</p>	calculate a fraction, decimal or percentage of a quantity.	NS 4.3
27	5	<p>Vanessa spent <math>\\$107 - \\$75 = \\$32</math> on socks. The minimum number of pairs of socks Vanessa can buy is <math>\\$32 \div \\$7 = 4.5</math> The maximum number of pairs of socks Vanessa can buy is <math>\\$32 \div \\$6 = 5\frac{1}{3}</math>. So Vanessa bought between 4.5 and <math>5\frac{1}{3}</math> pairs of socks. Hence, Vanessa bought 5 pairs of socks.</p>	find solutions to a question involving mixed operations.	NS 3.3

28	15.6L	<p>5 bottles contain 6.5L.          So 1 bottle contain <math>6.5 \div 5 = 1.3</math>L.          Hence, 12 bottles contain  <math>1.3 \times 12 = 15.6</math> L.</p>	calculate rates from given information.	NS 4.3
29	\$10 to Tom and \$20 to David	<p>Let Tom have <math>x</math> dollars, then David has <math>x - 10</math> dollars and Kevin has <math>x + 40</math> dollars.          The total money they have is  <math>x + x - 10 + x + 40 = 3x + 30</math> dollars.          To have equal money each should have  <math>\frac{3x + 30}{3} = x + 10</math> dollars.          Hence, this indicates that Kevin should give \$10 to Tom and \$20 to David, so that each can have <math>x + 10</math> dollars.</p>	find solutions to a question involving mixed operations.	NS 3.3
30	\$115	<p>The Sunset TV is discounted by 30%, so its sale price is 70% of its normal price.          Hence, its price is <math>\frac{70}{100} \times \\$2250 = \\$1575</math>.          The Vision TV is discounted by 35%, so its sale price is 65% of its normal price.          Hence, its price is <math>\frac{65}{100} \times \\$2600 = \\$1690</math>.          Therefore, at this sale, the difference in their prices is <math>\\$1690 - \\$1575 = \\$115</math>.</p>	calculate a fraction, decimal or percentage of a quantity.	NS 4.3
31	72	<p>The profit made from selling the cups of coffee was  <math>84 \times \\$1.75 = \\$147</math>          Therefore, the profit made from selling the of slices of cake was  <math>\\$287.40 - \\$147 = \\$140.40</math>          Hence, the number of slices of cake sold on that day was  <math>\\$140.40 \div \\$1.95 = 72</math></p>	select and apply appropriate strategies to find solutions to a question involving mixed operations.	NS 3.3

32	\$216	<p>Using the new printer, the company needs <math>36000 \div 6000 = 6</math> cartridges in a year. The cost of these cartridges is <math>6 \times \\$75 = \\$450</math>.</p> <p>Using the old printer, every year the company needs to change the cartridges <math>36000 \div 4000 = 9</math> times. Since each time four cartridges are needed then, the number of cartridges needed is 36.</p> <p>The cost of these cartridges is <math>36 \times \\$18.50 = \\$666</math>.</p> <p>Hence, by using the new printer rather than the old printer the company saves <math>\\$666 - \\$450 = \\$216</math> per year.</p>	select and apply appropriate strategies to find solutions to a question involving mixed operations.	NS 3.3
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