Dimensions Mathematics 8B
Teaching Notes and Solutions

					08/22/2014
Page					Added/ changed (mm/dd/yyyy)
3	10.3			***Applications of Pythagorean Theorem***	
6	13.3			Second to last paragraph, last sentence: … on scatter plots and to analyze the correlation of …	
	13.3			Last paragraph, last line: … a simple project on data collection, organization, presentation,	
20	Class Activity 5	(d)(i)	Answer	The graphs (ii), (ii) and (iv) have the same shape, and the lowest part of the curve passes through the y-axis. Graphs (ii) and (ii) both pass through (0, 0) at the lowest part of their curve, but have different widths.	
		(d)(ii)		Graph (viii) (–1, 2)	
		(d)(v)		Graphs (i), (ii), (iii), (v), (vi), and (vii) meet the x-axis at one point. Graphs (iv) and (viii) cross the x-axis at two points.	
		(d)(vi)		Graph (viii); $x = 1$	
21	Class Activity 6	6(b)	Answer	On graph, change (vi) to (iv).	
22		6(c)(i)	Answer	Graphs (i) and (ii) pass through ...	
		6(c)(iv)	Answer	… graph (iv) meets the axis at 2 points, and graph (iii) meets the axis at 0 points.	
25	Try It	4(s)	Solution	The line of symmetery of the graph is x = 3. Therefore the minimum distance is 1 cm.	
25	Try It	5		When David hits a soccer ball with his head, …	
		5(b)	Solution	In the chart, replace x with t and y with h.	
27	Ex. 8.1	4(a)	Solution	x: –3, –1, 0, 3 y: –7, –3, –1, 5	
		5(a)(ii)	Solution	Since the total charge increases by $50 for every car rented, the function is linear. Rate of change = $50/car	
29		10(a)	Solution	The graph is incorrect. Only the first point on the graph, (0, 96) is placed correctly.	
33	Ex. 8.2	4	Solution	The solution is labeled incorrectly, and should be (a), (b), (c), (d), (e) rather than (a), (b), (b), (c), (d).	

34		5(a)-(b)	Solution	The graphs should be unlabeled and the parts following it labeled (i), (ii), (iii) and (iv).	
		5(c)(iv)	Solution	y-intercept = 6	
37	Rev. Ex. 8	1	Solution	Delete part (d). Change (c) to (b). Move graph to be last and lable it (c). For new (b): Slope = ...	
		2(a)	Solution	The units on the graph are incorrect. The x-axis should be Distance (miles) and the y-axis should be Time (min).	
38		3(c)	Solution	Initial value = 13.5	
		3(d)	Solution	The required function is $y = 0.035x + 13.5$	
40		8	Solution	The last three parts should be labled (b) then (I), (ii), (iii), not (b), (c), (d).	
		10(c)	Solution	It represents the cost of workmanship.	
43	Try It	3(f)	Solution	From the graph, from 8:30 to 9:00, Jim traveled 20 km. Jim's speed = $20 \div \frac{30}{60}$	
46	Ex. 9.1	3(a)	Solution	Price of Anne's order = \$3.49 + \$1.50 + \$0.89 + \$0.59	
47		4(b)(ii)	Solution	Third line from bottom: $\frac{2{,}500}{17{,}000}$ x 200%	
49	Ex. 9.2	2(b)	Solution	$= 13\frac{1}{3}$ km/h	
50		4(b)	Solution	Average speed of Alicia for the whole journey	
		4(c)(ii)	Solution	The diagram below shows the distance-time graph of John and Alicia.	
52		8	Solution	However, after driving for 15 minutes, he realized that …	
		9(b)(i)	Solution	Peter's speed during the first 5 minutes $= \frac{0.75 \text{ km}}{5 \text{ min}}$ $= \frac{750 \text{ m}}{300 \text{ s}}$ = 2.5 m/s	
		9(b)(ii)	Solution	Peter's speed during the last 4 minutes $= \frac{0.75 \text{ km}}{4 \text{ min}}$ $= \frac{750 \text{ m}}{240 \text{ s}}$ = 3.125 m/s = 3.13 m/s (rounded to 3 sig. fig.)	
53		10	Solution	However, after cycling 5 km he realized he had …	

53	Rev. Ex. 9	2(a)	Solution	When t = 2, y = (0.3 + (0.2 x 2) = 0.7 When t = 4, y = (0.3 + (0.2 x 4) = 1.1 When t = 6, y = (0.3 + (0.2 x 6) = 1. 5 When t = 2, y = (1.5 + [0.1 x *(8 – 6)] = 1.7	
55		6	Question	After the goods were delivered at the second destination, …	
56		6(b)	Solution	From t2 to t3, distance the truck traveled = 0.5 km/min x 20 min = 10 km Total distance to second destination = 15 km + 10 km = 25 km	
		6(c)	Solution	Total time taken to unload goods = 90 – 45 = 45 min	
66	Ex. 10.1	11(a)	Solution	$\therefore$ the four sides of $PQRS$ are equal, and all of its angles are equal to 90°.	
67	Ex 10.2	2(a)	Solution	$b^2 + c^2 = 9.9^2 + 2^2 = 102.01$ $a^2 = 10.1^2 = 102.01$ $\therefore\ a^2 = b^2 + c^2$ ΔABC is a right-angled triangle.	
		3	Solution	$AD^2 + DC^2 = 8^2 + 24^2$ $= 640$ Remove the Note at the end.	
77	Rev. Ex. 10	8(c)	Solution	Area of ΔABC = $\frac{1}{2}$ x Area of ABCD $\therefore\ \frac{1}{2}$ x AC x h = $\frac{1}{2}$ x 240	
80	Class Activity 1	1(a)	Answer	RS | $R(-2, 1), S(-2, 3)$ | 3 – 1 = 2 LM | $L(3, -2), M(3, 1)$ | 1 – (–2) = 3	
82	Class Activity 2	1(c)	Answer	The lines AB, BC, and AC have the same slope.	
		2(b)	Answer	Second equation down on right hand side: EC = 6 – 0 = 6	
83		2(d)	Answer	From (a), it is shown that the slopes of … From (b), it is also shown that the ratios …	
86	Try It	3(c)	Solution	Slope of TV = $\frac{0-9}{-4-2}$	
87		6(a)	Question	Change comma at end of sentence to a period.	
		6(b)	Solution	Let the equation of CD be $y = -7x + c$,	
		7(b)	Solution	Since it passed through … the equation of RS is y = 5.	

91	Ex. 11.2	1(h)	Solution	Slope of $PQ = \dfrac{3aq - 3ap}{aq^2 - ap^2}$ $= \dfrac{3a(q-p)}{a(q+p)(q-p)}$ $= \dfrac{3}{q+p}$	
92		8	Solution	$3t^2 - t - 10 = 0$ $(3t+5)(t-2) = 0$ $t = -\dfrac{5}{3}$ or $t = 2$	
93		10(a)	Solution	Slope of PQ = $\dfrac{0-(-3)}{4-(-2)}$	
		10(b)	Solution	The products of the slopes of the adjacent sides …	
94	Ex. 11.3	1(d)	Solution	slope = 0	
96		6	Question	On the graph, the last label on the x-axis should be 4, not x.	
		6	Solution	L_5 is a vertical line that passes through (3, 0). The equation of L_5 is $x = 3$.	
99	Rev. Ex. 11	1(b)	Solution	$\therefore m = -\dfrac{3}{2}$, and $y = -\dfrac{3}{2}x + c$ … $\therefore$ The equation of the line is $y = -\dfrac{3}{2}x - 8$ Since (k, –5) lies on the line, $-5 = -\dfrac{3}{2}k - 8$ $\dfrac{3}{2}k = -3$ $k = -2$	
		2(d)	Question	Omit. RT cannot be found from the length of PQ using information students have currently been taught.	
		2(c)	Solution	QR = 6 + 6 = 12 units MP = 6 – (–3) = 9 units Area of ΔPQR = $\dfrac{1}{2}$ x 12 x 9 = 54 units^2	
100		2(d)	Solution	Omit. The solution does not make sense, and the length of PQ is not correctly calculated.	
		3(e)	Question	Find the coordinates of the point at which the line AC cuts the y-axis.	10/24/2018

		3(e)	Solution	Let (0, t) be the point that AC cuts the y-axis. Slope of AT = slope of AC $$\frac{t-2}{0-(-1)}=\frac{3-2}{4-(-1)}$$ $$t-2=\frac{1}{5}$$ $$t=\frac{11}{5}$$ The required coordinates are $(0, \frac{11}{5})$	10/24/2018
102		6(b)	Solution	$\therefore$ slope of AC = slope of AG	
		6(b)	Solution	$\therefore$ slope of BD = slope of BG	
		7(d)	Solution	$AB^2+BC^2=\left(\sqrt{52}\right)^2+\left(\sqrt{20}\right)^2$ $=72$	
103		9(a)	Solution	Slope of BD = $\frac{4-2}{(-5-9)}$ = $-\frac{1}{7}$ Let the equation of the line be $y = -\frac{1}{7}x + c$. Since C(7, 8) lies on the line, 8 = $(-\frac{1}{7})(7)$ + c c = 9 $\therefore$The equation of the line is y = $-\frac{1}{7}x$ + 9.	
107	Ch 12	(b)(i)	Solution	For n = 2, the 5 centers of … … Let N be the center of *ABCD*,	
		(b)	Solution	For n = 3, the vertical distance between 2 centers in …	
110	Try It	8(b)	Solution	Second to last line: = 362.88π	
117	Ex. 12.1	12	Solution	Volume of the pyramid = $\frac{1}{3}$ x 756^2 x 480.6 = 7.16 x 107 ft^2 (rounded to 3 sig. fig.)	
		13(a)	Question	Add comma at the end.	
119	Ex. 12.2	8(a)	Solution	π x 2^2 x y = π x 6^2 x 5	
121		15(c)	Solution	= $\left[\left(2\times\pi\times\frac{4}{5}\right)\times(2\times100)\right]+$ … (first term should to be squared.)	

122	Ex. 12.3	3(b)	Solution	The height of the cone is given as 25 cm. Delete the first 4 lines of the solution. Then: Volume of the cone $= \frac{1}{2} \times \pi \times 7^2 \times 25$ $= 408.33\pi$ $= 1{,}280\ \text{cm}^3$ (rounded to 3 sig. fig.)	
123		9(a)	Solution	Volume of the cone $= \frac{1}{3} \times \pi \times 7^2$ $= 1{,}060\ \text{in.}^3$	
124		9(b)	Solution	Let l be the slant height of the cone. $l^2 = 28^2 + 62$ $l = \sqrt{820}$ $l = 28.6$ (rounded to 3 sig. fig.) The slant height is 28.6 in.	
		9(c)	Solution	$= \pi \times 6 \times 28.6$ $= 171.8\pi$ $= 540\ \text{in.}^3$ (rounded to 3 sig. fig.)	
		10(a)	Solution	$= \frac{1}{3} \times \pi \times 6^2 \times 18$ $= 216\pi$ $= 674\ \text{cm}^3$ (rounded to 3 sig. fig.)	
		10(b)	Solution	$= 0.75 \times 216\pi$ $= 509$ g (rounded to 3 sig. fig.)	
		11	Solution	Volume of each ice cream cone $= \frac{1}{3} \times \pi \times \left(\frac{6}{2}\right)^2 \times 12$	
126	Ex. 12.4	3(b)	Solution	$= 442\ \text{in.}^2$	
134	Rev. Ex. 12	10(a)	Solution	Capacity of the tank $= \pi \times 0.3 \times 1.4 + \frac{1}{2} \times \frac{4}{3} \pi \times 0.3^3$ $= 0.144\pi\ \text{m}^3$ Volume of wate4r in the tank $= \frac{1}{2} \times 0.144\pi$ $= 0.072\pi$ $= 0.226\ \text{m}^3$ (rounded to 3 sig. fig/)	
		10(b)	Solution	$\pi \times 0.3^2 \times (1.7 - d) = 0.072\pi$ $1.7 - d = 0.8$ $d = 1.7 - 0.8$ $d = 0.9$ The depth of water in the tank is 0.9 m.	
		11(c)	Solution	$= 427$ (rounded to 3 sig. fig.)	

		12(a)	Solution	$=2\left(\frac{1}{2}\times\pi\times10^2\right)+2(30\times10)$ $+40\times\left[\left(2\times\frac{1}{4}\times2\times\pi\times10\right)+30\right]$ $=3{,}370$ cm^2	
135		13(b)	Solution	Area of trapezoid = $\frac{1}{2}$ (26 + 12 + 26 + 12) x 16 = 608 in.^{2} (rounded to 3 sig. fig.) Area of EFG = $\frac{1}{2}$ x π x $\left(\frac{20}{2}\right)^2$ = 157 in.^{2} (rounded to 3 sig. fig.) Length of EFG = $\frac{1}{2}$ x 2 x π x $\frac{20}{2}$ = 31.4 in. (rounded to 3 sig. fig.)	
				Surface area = 2(608 – 157) + [2(15) + (10π) +2(20) + 26] x 5 x 12 = 8,550 in.^{2} (rounded to 3 sig. fig.)	
		13(c)	Solution	Volume of girder = (608 – 157) x 5 x 12 = 27,100 in.^{3} (rounded to 3 sig. fig.)	
		13(s)	Solution	Total weight = 0.28 x 27,100 = 7,590 pounds (rounded to 3 sig. fig.)	
		14	Solution	Change the diagram; the diameters are 3 and 4, not the radii.	
		14(a)	Solution	Volume of material used = (π x 2^2 x 1.2 x 100) – ((π x 1.5^2 x 1.2 x 100) = 660 cm^2 (rounded to 3 sig. fig.)	
		14(b)	Solution	Total surface area = 2(π x 2^2 – π x 1.5^2) + 2 x π x 1.5 x 1.2 x 100) + (2 x π x 2 x 1.2 x 100) = 2,650 cm^2 (rounded to 3 sig. fig.)	
		14(c)	Solution	Volume of water = π x 1.52 x 25 x 1 x 60 = 10,600 cm^3 (rounded to 3 sig. fig.)	
		14(d)	Solution	48 x 30 x h = 10,600 h = 7.36 cm (rounded to 3 sig. fig.)	

<table>
<tr><td>136</td><td></td><td>15(b)</td><td>Solution</td><td>Total surface area
$= 2(4 \times 7) + 2(\frac{1}{4} \times \pi \times 7^2)$
$+ 20 \times (7 + 4 + 7 + 4 + (\frac{1}{4} \times 2 \times \pi \times 7)$
$= 56 + \frac{49}{2}\pi + 440 + 70\pi$
$= 793\ cm^2$ (rounded to 3 sig. fig.)</td><td></td></tr>
<tr><td></td><td></td><td>15(d)</td><td>Solution</td><td>Total lacquer required = 793 x 10
$= 7{,}930\ cm^2$
…
Bottles of lacquer required = 2</td><td></td></tr>
<tr><td>143</td><td>Try It</td><td>1</td><td>Solution</td><td><table><tr><th>Fitness Grade</th><th>Tally</th><th>Frequency</th></tr><tr><td>A</td><td>~~////~~ ////</td><td>9</td></tr><tr><td>B</td><td>~~////~~ ~~////~~ /</td><td>11</td></tr><tr><td>C</td><td>~~////~~ ~~////~~</td><td>10</td></tr><tr><td>D</td><td>////</td><td>4</td></tr><tr><td>F</td><td>//</td><td>2</td></tr><tr><td></td><td>Total</td><td>36</td></tr></table></td><td></td></tr>
<tr><td></td><td></td><td>3(a)</td><td>Solution</td><td><table><tr><th>Students</th><th>6th Grade</th><th>8th Grade</th><th>Total</th></tr><tr><td>Action (A)</td><td>10</td><td>8</td><td>18</td></tr><tr><td>Comedy (C)</td><td>10</td><td>5</td><td>15</td></tr><tr><td>Romance (R)</td><td>5</td><td>12</td><td>17</td></tr><tr><td>Total</td><td>25</td><td>25</td><td>50</td></tr></table></td><td></td></tr>
<tr><td>148</td><td>Ex. 13.1</td><td>3(a)</td><td>Solution</td><td><table><tr><th>Gender</th><th>Men</th><th>Women</th><th>Total</th></tr><tr><td>Approved of the proposal</td><td>21</td><td>98</td><td>119</td></tr><tr><td>Disapproved of the proposal</td><td>74</td><td>37</td><td>111</td></tr><tr><td>Total</td><td>95</td><td>135</td><td>230</td></tr></table>(i) Total number of people disapproved = 111</td><td></td></tr>
<tr><td>149</td><td></td><td>5(c)</td><td>Question</td><td>Find the percentage of students who obtained grade A or grade B.</td><td></td></tr>
<tr><td></td><td></td><td>5(a)</td><td>Solution</td><td>In table, fitness grade, last row, change E to F.</td><td></td></tr>
<tr><td>150</td><td></td><td>8(c)</td><td>Solution</td><td>More female students like to attend Drama, Chess, and Literary Club, and more male students like to attend Math Club. Drama Club has the highest attendance among females.</td><td></td></tr>
<tr><td>151</td><td></td><td>9(d)</td><td>Solution</td><td>… and watching TV is the most preferred weekend leisure activity for men.</td><td></td></tr>
<tr><td>152</td><td>Ex. 13.2</td><td>1(c)</td><td>Question</td><td>Which snack foods were preferred …</td><td></td></tr>
<tr><td></td><td></td><td>1(d)</td><td></td><td>Name the top three preferred snack foods among …</td><td></td></tr>
<tr><td>153</td><td></td><td>3(a)(ii)</td><td></td><td>In the graph, replace E with F.</td><td></td></tr>
<tr><td></td><td></td><td>3(a)(ii)</td><td></td><td>In the chart, replace E with F.</td><td></td></tr>
<tr><td>157</td><td></td><td>10(c)</td><td>Solution</td><td>Chips were preferred by considerably more boys than girls.</td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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159	Ex. 13.3	2		… in one town from 2006 to 2014.	
		2(b)	Solution	The graph is drawn incorrectly. The solid line should go to (2014, 7.3) and then a dotted line should extend from that to (2014, 7.8).	
		3(b)	Solution	The price of the stock decreases in general, …	
160		5(a)	Solution	The estimated slope is $-\frac{1}{15}$.	
		5(d)	Solution	There is a high negative correlation between the number of hours the students spent on online activities and their academic performance. The fewer the number of hours the students spent on online activities, the higher are their grade point averages.	
161		7(a)	Solution	The line graph is missing.	
		7(b)	Solution	This is mislabeled as (a).	
		7(b)(i)	Solution	= 1.77% (rounded to 3 sig. fig.)	
		7(b)(ii)	Solution	= $\frac{4.24-4.19}{4.19}$ x 100%	
163		10(a)	Solution	The data points for 2009 and 2010 are incorrect. They should be at (2009, 9.3) and (2010, 9.7). The line from 2011 to 2012 should be dotted, since it is estimated.	
		10(b)	Solution	Between 2007 and 2010, There is a sharp increase of 4.7% to 2009, and a further increase of 0.4%, bringing unemployment rate to its highest in 6 years.	
164		12(c)	Solution	Solution shown is for (c)(i).	
		12(c)(ii)	Solution	$y=\frac{1}{12}x+2$	
165				Review Exercise 13	
	Rev. Ex. 13	1(b)	Solution	Basketball and soccer are equally popular among the students.	
166		2(b)	Solution	The choir club was the most popular.	
		2(d)	Solution	Total number of girls = 4 + 13 + 10 + 12 = 39	
		3(b)	Solution	The growth in height is greatest from age 11 to 14, and then slows down in the next four years. There is no increase in height from age 16 to 17.	
		3(c)	Solution	The girl's height at age 18 is estimated to be 169 cm.	
		3(d)(i)	Solution	m = 60 + 0.9(h – 160) When h = 168, m = 60 + 0.9(168 – 160) = 67.2	

		3(d)(ii)	Solution	When $m = 63$, $63 = 60 + 0.9(h - 160)$ $3 = 0.9(h - 160)$ $h - 160 = 3\frac{1}{3}$ $h = 163\frac{1}{3}$	
167		5	Question	… and US Dollars (USD) …	
168		6(a)	Solution	On the graph, Day 1 should have a temperature of 85°, not 80°.	
		7(a)	Solution	y-axis label: Number of Beach Visitors x-axis label: Temperature (°F)	
169		8(a)(i)	Solution	In the graph, there should be a point at (6, 80). There should not be points at (6, 100) and (6, 200).	
170-171	Class Activity 14			The figures do not need to be shown twice.	
173	Try It	1	Solution	$x = -\frac{2}{5}$ or $x = 3$	
174	Try It	7	Solution	$2x^2 - 9x + 6 = 0$ $x^2 - \frac{9}{2} = -3$ $x^2 - \frac{9}{2}x + \left(-\frac{9}{2}\right)^2 = -3 + \left(-\frac{9}{2}\right)^2$ $\left(x - \frac{9}{4}\right)^2 = \frac{33}{16}$ $x - \frac{9}{4} = -\sqrt{\frac{33}{16}}$ or $x - \frac{9}{4} = \sqrt{\frac{33}{16}}$ $x = -\sqrt{\frac{33}{16}} + \frac{9}{4}$ or $x = \sqrt{\frac{33}{16}} + \frac{9}{4}$ $x = 0.814$ or $x = 3.69$	
177	Ex. 14.1	1(b)	Solution	$x^2 + 13x - 30 = 0$ $(x + 15)(x - 2) = 0$ $x + 15 = 0$ or $x - 2 = 0$ $x = -15$ or $x = 2$	
		1(c)	Solution	Last line: $x = -\frac{1}{2}$ or $x = 7$	
		1(d)	Solution	Third line: $3x - 4 = 0$ or $x - 2 = 0$	
179	Ex. 14.2	1(d)	Solution	$x^2 + 7x + \left(\frac{7}{2}\right)^2 = \left(x + \frac{7}{2}\right)^2$	
		2(a)	Solution	Third line: $x + 3 = -7$ or $x + 3 = 7$	

		2(b)	Solution	Third line: $x-\frac{5}{2}=-\frac{3}{2}$ or $x-\frac{5}{2}=\frac{3}{2}$	
		3(b)	Solution	Third line: $x^2-14x+\left(-\frac{14}{2}\right)^2=5+\left(-\frac{14}{2}\right)^2$ Sixth line: $x+7=-\sqrt{54}$ or $x-7=-\sqrt{54}$	
180		4(b)	Solution	Third line: $x^2-x+\left(-\frac{1}{2}\right)^2=1+\left(-\frac{1}{2}\right)^2$	
		4(d)	Solution	Fourth line: $x^2-\frac{14}{3}x+\left(-\frac{14}{6}\right)^2=-2+\left(-\frac{14}{6}\right)^2$	
181		5(a)	Solution	Sixth line: $x+\frac{13}{2}=\pm\sqrt{\frac{205}{4}}$	
		5(d)	Solution	First line: $2x(x-5)=7(x+1)$	
182	Ex. 14.3	2(c)	Solution	Second line: $11-(4x^2-12+9)=0$	
184		5	Question	Its vertical distance, h meters, from the ground …	
186	Ex. 14.4	6(a)	Solution	Second row, first column of table: $y=3x^2-2x+4$	
188	Ex. 14.5	2	Solution	Fifth line: $(x-17)(x+19)=0$	
		4	Solution	Replace the word “breadth” with “ ”.	
191		15(c)	Solution	Second line: $x=\frac{-2\pm\sqrt{2^2-4(4)(-25)}}{2(4)}$ Last line: = 2.26 or –2.76	
		15(d)	Solution	When x = 2.26, time taken by tap A = $\frac{50}{2.26}$ = 22.1 min	

192	Rev. Ex. 14	4(b)	Solution	$36x^2+12x-1=0$ $x=\frac{-12\pm\sqrt{12^2-4(12)(-1)}}{2(36)}$ $x=\frac{-12\pm\sqrt{288}}{2(36)}$ $x=\frac{-12+\sqrt{288}}{2(36)}$ or $x=\frac{-12-\sqrt{288}}{2(36)}$ $x=0.0690$ or $x=-0.402$ (rounded to 3 sig. fig.)	
193		5(a)	Solution	Third line: $x+1=\pm\sqrt{36}$	
		6(d)	Solution	Third line: $\frac{15x-1}{9x^2-1}=-\frac{1}{3x}$	
194		8	Solution	= 55.2 or (rejected) $\therefore$ the train's average speed is 55.2 mph.	
		10(a)(iii)	Solution	(24 x 17) + 12 = 420	
		10(b)	Solution	$(24-x)(17+x)=420$ $408+24x-17x-x^2=420$ $-x^2+7x+12=0$ $(x-4)(x-3)=0$ $x=4$ or $x=3$	
195		11	Solution	Put (b) farther down, in front of the line Perimeter of rectangle A.	
		11(a)	Solution	Use the current material under (a) and then the material under (b) up to the line that says "Perimeter of rectangle A" with the following corrections, starting with the last correct line of solution: $3x^2+6x-32=0$ $x=\frac{-6\pm\sqrt{(-6)^2-4(3)(-32)}}{2(3)}$ $=\frac{-6\pm\sqrt{36+384}}{6}$ $=\frac{-6+\sqrt{420}}{6}$ or $\frac{-6-\sqrt{420}}{6}$ $=2.42$ or -4.42 (rejected) (rounded to 3 sig. fig.) Width of rectangle B = $\frac{16}{2.42+2}$ = 3.62 m	

		11(b)	Solution	Perimeter of rectangle A $=2\left(x+\frac{16}{x}\right)$ $=2\left(2.42+\frac{16}{2.24}\right)$ $=18.1$ (rounded to 3 sig. fig.) Perimeter of rectangle B $=2\left[(x+2)+\frac{16}{x+2}\right]$ $=2\left[(2.42+2)+\frac{16}{2.42+2}\right]$ $=16.1$ (rounded to 3 sig. fig.) $\therefore$ Garden plot A has the greater perimeter.	
		12(a)(ii)	Solution	Second to last line: $2x^2 + 7x$ -1,400 = 0	
		12(c)	Solution	When x = -30.19, the number of gallons used when …	