

2.13.18

A garden measuring 12m by 16m is to have a pedestrian pathway that is  $w$  meters wide installed all the way around it. Find an expression for the area of the pathway.

Data Day

2017	Block 1	Block 3	Block 4
mean	77.7	77.7	83.6
median	80	81.11	86.67
mode	95.55	75.55	

2018	Block 1	Block 3	Block 4
mean	74.7	75	81.5
median	81.66	74.44	82.22
mode	84.44		82.22

**Block 1**

Summary													
Total Students With Valid Growth Test Scores													
Mean RIT													
Median RIT													
Standard Deviation													
District Grade Level Mean RIT													
Students At or Above District Grade Level Mean RIT													
Norm Grade Level Mean RIT													
Students At or Above Norm Grade Level Mean RIT													
Overall Performance													
	LO	LoAvg	Avg	HiAvg	Hi	Mean RIT	Median RIT	Std Dev					
	% < 21	% 21-40	% 41-60	% 61-80	% > 80	(+/- Smp Err)							
Growth: Math 6+ CCSS 2010 V2 / Common Core State Standards Mathematics: 2010	0	0%	0	0%	1	4%	3	12%	22	85%	250-280-261	259	12.1
Goal Area													
Operations and Algebraic Thinking	0	0%	0	0%	0	0%	3	12%	23	89%	250-261-263	263	10.3
The Real and Complex Number Systems	0	0%	1	4%	2	8%	1	4%	22	85%	250-280-261	258	16
Geometry	0	0%	0	0%	1	4%	6	23%	19	73%	254-287-259	257	13.6
Statistics and Probability	0	0%	0	0%	1	4%	5	19%	20	77%	254-287-259	260	13.4

**Block 3**

Summary													
Total Students With Valid Growth Test Scores													
Mean RIT													
Median RIT													
Standard Deviation													
District Grade Level Mean RIT													
Students At or Above District Grade Level Mean RIT													
Norm Grade Level Mean RIT													
Students At or Above Norm Grade Level Mean RIT													
Overall Performance													
	LO	LoAvg	Avg	HiAvg	Hi	Mean RIT	Median RIT	Std Dev					
	% < 21	% 21-40	% 41-60	% 61-80	% > 80	(+/- Smp Err)							
Growth: Math 6+ CCSS 2010 V2 / Common Core State Standards Mathematics: 2010	0	0%	0	0%	0	0%	3	10%	27	90%	250-288-259	260	8.8
Goal Area													
Operations and Algebraic Thinking	0	0%	0	0%	0	0%	1	3%	29	97%	250-260-261	259	7.8
The Real and Complex Number Systems	0	0%	0	0%	1	3%	1	3%	28	93%	250-288-261	259	11.6
Geometry	0	0%	0	0%	1	3%	3	10%	26	87%	250-287-259	259	10.6
Statistics and Probability	0	0%	1	3%	0	0%	6	20%	23	77%	253-288-258	255	12.2

**Block 4**

Summary													
Total Students With Valid Growth Test Scores													
Mean RIT													
Median RIT													
Standard Deviation													
District Grade Level Mean RIT													
Students At or Above District Grade Level Mean RIT													
Norm Grade Level Mean RIT													
Students At or Above Norm Grade Level Mean RIT													
Overall Performance													
	LO	LoAvg	Avg	HiAvg	Hi	Mean RIT	Median RIT	Std Dev					
	% < 21	% 21-40	% 41-60	% 61-80	% > 80	(+/- Smp Err)							
Growth: Math 6+ CCSS 2010 V2 / Common Core State Standards Mathematics: 2010	0	0%	0	0%	0	0%	1	4%	25	96%	250-289-261	261	6.7
Goal Area													
Operations and Algebraic Thinking	0	0%	0	0%	0	0%	1	4%	25	96%	261-263-264	264	6.4
The Real and Complex Number Systems	0	0%	0	0%	0	0%	1	4%	25	96%	250-260-261	261	7.1
Geometry	0	0%	0	0%	0	0%	6	23%	20	77%	253-288-257	255	9.8
Statistics and Probability	0	0%	0	0%	0	0%	2	8%	24	92%	257-289-261	261	9

A garden measuring 12m by 16m is to have a pedestrian pathway that is  $w$  meters wide installed all the way around it. Find an expression for the area of the pathway.

If the total area of the pathway is 380 m<sup>2</sup>. What is the width  $w$ , of the pathway?

$2w + 12$   
 $12$   
 $16$   
 $w$   
 $w$   
 $w$   
 $w$   
 $4w^2 + 56w + 12(16) = 380$   
 $4w^2 + 56w - 380 = 0$   
 $w^2 + 14w - 95 = 0$   
 $(w-5)(w+19) = 0$   
 $w-5=0$  or  $w+19=0$   
 $w=5$  or  $w=-19$

A picture that is 8 in by 10 is to have a matting placed behind it that is  $w$  inches wide increasing the total area to 168 in<sup>2</sup>. What is the width  $w$ , of the matting?

$$(2w+8)(2w+10) = 168$$

$$4w^2 + 36w + 88 = 168$$

$$4w^2 + 36w - 88 = 0$$

$$4(w^2 + 9w - 22) = 0$$

$$4(w-2)(w+11) = 0$$

$w-2=0$      $w+11=0$   ~~$w = -11$~~   
 $w = 2 \text{ in}$

A garden with dimensions of 7ft by 8ft with a uniform border around it. The area of the border around the garden is 76 square feet. What is the width of the border?

$$(2w+7)(2w+8) - 7(8) = 76$$

$$4w^2 + 30w + 7(8) - 7(8) = 76$$

$$4w^2 + 30w = 76$$

$$4w^2 + 30w - 76 = 0$$

$$2(2w^2 + 15w - 38) = 0$$

$$2(2w+19)(w-2) = 0$$

$2w+19=0$      $w-2=0$   
 ~~$w = -19/2$~~      $w = 2 \text{ ft}$

Emilio is placing a photograph behind a 12-inch by 12-inch piece of matting. The photograph is to be positioned so that the matting is twice as wide at the top and bottom as it is on the sides. If the area of the photograph is to be 54 square inches, what are the dimensions of the photograph?

$$12 - 2(3/2) = 9$$

$$12 - 2(1 1/2) = 9$$

$$12 - 4(3/2) = 6$$

$$(12-2w)(12-4w) = 54$$

$$144 - 72w + 8w^2 = 54$$

$$8w^2 - 72w + 90 = 0$$

$$2(4w^2 - 36w + 45) = 0$$

$$2(2w-3)(2w-15) = 0$$

$2w-3=0$      $2w-15=0$   
 $w = 3/2$  OR  $w = 15/2$

- Block 1: 9:20 - 10:10 (50 minutes)
- Block 4: 10:15 - 11:10 (55 minutes)
- Block 3: 12:43 - 2 (BLOCK 3 + LUNCH) (37 minutes class + 25 minutes for lunch)
- Movie: 2:00 - 4:05 starts on closed circuit at 2
- Chromeroom: 4:10

Samay placed a photo on a 24in by 24in piece of matting. The photo is to be placed so that the matting is 3 times as wide on the sides as it is on the top and bottom. If the picture has an area of 315 square inches, what are the dimensions of the photo?

$$A = lw$$

$$315 = (24-6w)(24-2w)$$

$$315 = 24(24) - 48w - 144w + 12w^2$$

$$315 = 576 - 192w + 12w^2$$

$$-315 - 576 + 192w - 12w^2 = 0$$

$$0 = 12w^2 - 192w + 261$$

$$0 = 3(4w^2 - 64w + 87)$$

$$0 = 3(2w-3)(2w-29)$$

$2w-3=0$      $2w-29=0$   
 $w = 3/2$      $w = 29/2$   
 $= 1.5$      $= 14.5$

Mia placed a photo with a base of 18in and a height of 12in in front of a piece of matting. The photo is to be placed so that the matting is twice as wide on the sides as it is on the top and the bottom. If the area of matting is 260 square inches, what are the outer dimensions of the matting?

$$A_{BD} - A_{sq} = 260$$

$$(2w+18)(2w+12) - 18(12) = 260$$

$$4w^2 + 48w + 36w + 18(12) - 18(12) = 260$$

$$4w^2 + 84w = 260$$

$$4w^2 + 84w - 260 = 0$$

$$4(2w^2 + 21w - 65) = 0$$

$$4(2w-5)(w+13) = 0$$

$2w-5=0$      $w+13=0$   
 $w = 5/2$      ~~$w = -13$~~   
 $= 2.5$

A rectangular sheet of metal 20 cm by 40 cm is made into a lidless box by cutting squares of equal size from the corners of the sheet and then folding up the sides to form a box. The bottom of the box has an area of 300 cm<sup>2</sup>.

Find:

- the length of each square that was cut out of the sheet. *Side = 5 cm*
- the dimensions of the base of the box. *30 cm x 10 cm*
- the volume of the box. *300 cm x 10 cm x 5 cm = 1500 cm<sup>3</sup>*

*V = Bh = 300(5) = 1500 cm<sup>3</sup>*

$300 = (40 - 2x)(20 - 2x)$   
 $300 = 800 - 720x + 4x^2$   
 $-300 \quad -300$   

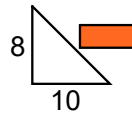

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 $0 = 4x^2 - 720x + 500$   
 $0 = 4(x^2 - 360x + 125)$   
 $0 = 4(x - 5)(x - 25)$   
 $x - 5 = 0 \quad x - 25 = 0$   
 $x = 5 \quad x = 25$

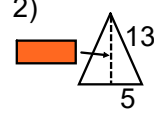
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Use the Pythagorean Theorem ( $a^2 + b^2 = c^2$ ) to find the missing side lengths. Round to the nearest tenth if necessary.

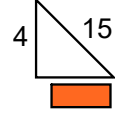
1)



2)



3)



MathCon

Gave article as homework.