University of the State of New York
State Education Department

New York State Testing Program
Mathematics Test

2013 Turnkey Training

Grade 8 Short-response (2-point) Sample Question

Guide Set

1 David currently has a square garden. He wants to redesign his garden and make it into a rectangle with a length that is 3 feet shorter than twice its width. He decides that the perimeter should be 60 feet.

Determine the dimensions, in feet, of his new garden.

Show your work.

Answer _____

Common Core Learning Standard Assessed: 8.EE.7b

Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.

1 David currently has a square garden. He wants to redesign his garden and make it into a rectangle with a length that is 3 feet shorter than twice its width. He decides that the perimeter should be 60 feet.

Determine the dimensions, in feet, of his new garden.

Show your work.

$$w = \text{ width}$$
$$2w - 3 = \text{length}$$
$$P = 2 \times (2w - 3) + 2 \times w = 60$$
$$4w - 6 + 2w = 60$$
$$6w - 6 = 60$$
$$6w - 6 + 6 = 60 + 6$$
$$6w = 66$$
$$\frac{6w}{6} = \frac{66}{6}$$
$$w = 11$$

$$2w - 3 = \text{length}$$
$$2 \times 11 - 3 = 22 - 3 = 19$$

Answer Width = 11 ft; Length = 19 ft

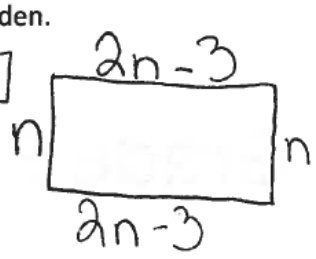
1 David currently has a square garden. He wants to redesign his garden and make it into a rectangle with a length that is 3 feet shorter than twice its width. He decides that the perimeter should be 60 feet.

Determine the dimensions, in feet, of his new garden.

Show your work.

length = $2n-3$ = $2 \cdot 11 - 3$ = 19

width = n = 11



$4n - 6 + 2n = 60$

$6n - 6 = 60$

$+6 \quad +6$

$\frac{6n}{6} = \frac{66}{6}$

$n = 11$

Answer width = 11 length = 19

Guide Paper 1

Paper	RF Number	Score	Notes
g01	N/A	2	**Score Point 2** This response answers the question correctly and demonstrates a thorough understanding of the mathematical concepts. The lengths of each side are shown in terms of n (n, $2n$-3) and are correctly used with the given perimeter to solve for n. The answer for both dimensions is correct. Units in the answer are not required since the question directs students to "determine the dimensions, in feet…"

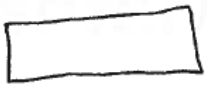
1 David currently has a square garden. He wants to redesign his garden and make it into a rectangle with a length that is 3 feet shorter than twice its width. He decides that the perimeter should be 60 feet.

Determine the dimensions, in feet, of his new garden.

Show your work.

x = width

$2x - 3$ = length



$2x - 3$
$2x - 3$
$\times$
x
$6x - 6$

Answer 11ft, 19ft.

$2(11) - 3$.

$22 - 3 = 19$

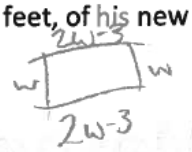
$6x + 6 = 60$
$-6 \quad -6$
$6x = 66$
$\frac{6x}{6} = \frac{66}{6}$
$x = 11$

Paper	RF Number	Score	Notes
g02	N/A	2	**Score Point 2** This response answers the question correctly and indicates that the student has completed the task correctly, using mathematically sound procedures. The lengths of each side are correctly shown in terms of *x* and are appropriately used with the given perimeter to solve for *x*. The answer for both dimensions is correct.

1 David currently has a square garden. He wants to redesign his garden and make it into a rectangle with a length that is 3 feet shorter than twice its width. He decides that the perimeter should be 60 feet.

Determine the dimensions, in feet, of his new garden.

Show your work.



Length = 19
width = 11

length = 2w - 3
width = w

$6w - 6 = 60$
$+6 \quad +6$
$\frac{6w}{6} = \frac{66}{6}$
$w = 11$

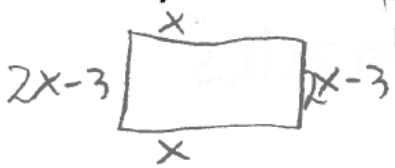
Answer 19ft x 11ft

Paper	RF Number	Score	Notes
g03	N/A	2	**Score Point 2** This response answers the question correctly and demonstrates a thorough understanding of the mathematical concepts. The lengths of each side are correctly shown in terms of *w* and are used correctly with the given perimeter to solve for *w*.

1 David currently has a square garden. He wants to redesign his garden and make it into a rectangle with a length that is 3 feet shorter than twice its width. He decides that the perimeter should be 60 feet.

Determine the dimensions, in feet, of his new garden.

Show your work.



Total 60 feet

$6x - 6 = 69$

$+6 \quad +6$

$\frac{6x}{6} = \frac{66}{6}$

$x = 11$

Answer $x = 11$

Paper	RF Number	Score	Notes
g04	N/A	1	**Score Point 1** This response is only partially correct and correctly addresses most elements of the task. The length of each side is correctly determined in terms of x and the equation is set up correctly and solved for x. However, the value given for x is not used to calculate the length of the garden, $(2x - 3)$. Therefore, only one dimension – the width – is given in the answer. The absence of units in the answer does not detract from the demonstration of understanding.

1 David currently has a square garden. He wants to redesign his garden and make it into a rectangle with a length that is 3 feet shorter than twice its width. He decides that the perimeter should be 60 feet.

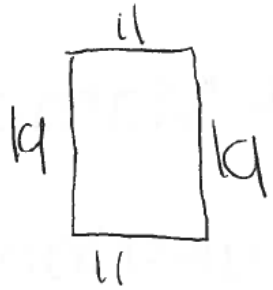
Determine the dimensions, in feet, of his new garden.

Show your work.

11X2=22

22
− 3
19

11
+11
19
19
60



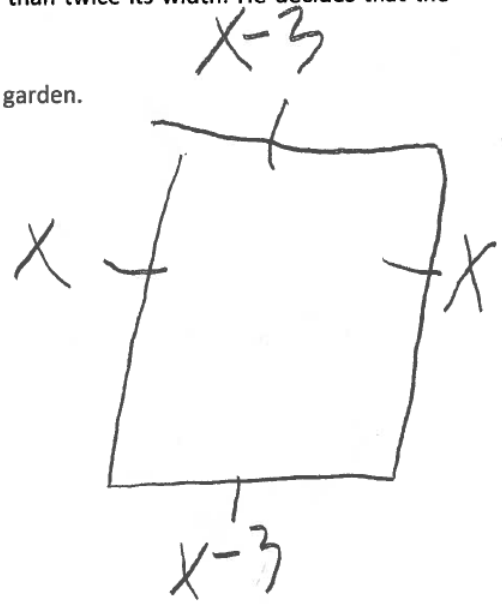
Answer Length 19 feet width 11 feet

Paper	RF Number	Score	Notes
g05	N/A	1	**Score Point 1** This response shows only partial understanding and contains correct numerical answers, but the required work is not provided. The correct numerical answers are given and a check of the answers is provided. However, it is not clear from the work provided how the width (11) was initially determined.

1 David currently has a square garden. He wants to redesign his garden and make it into a rectangle with a length that is 3 feet shorter than twice its width. He decides that the perimeter should be 60 feet.

Determine the dimensions, in feet, of his new garden.

Show your work.



Answer 12

13-3
13-3
13
13
46

L = X

W = X-3

60

1X-3
1X-3
1x
1x
4x-6

$\frac{66}{4}$

$4x-6=60$
$+6 \quad +6$

Paper	RF Number	Score	Notes
g06	N/A	1	**Score Point 1** This response is only partially correct and demonstrates only a partial understanding of the mathematical concepts. The rectangle's length and width are incorrectly expressed as x and x-3, respectively. However, these incorrect expressions are then correctly used in the perimeter equation, solving x = 66/4. The calculations are incorrectly completed.

1 David currently has a square garden. He wants to redesign his garden and make it into a rectangle with a length that is 3 feet shorter than twice its width. He decides that the perimeter should be 60 feet.

Determine the dimensions, in feet, of his new garden.

Show your work.

$60 = 2X + 3$

$-3 \quad -3$

$57 = 2X$

$\frac{57}{2} = \frac{2X}{2}$

$28.5 = X$

Answer length = 28.5 ft

width = 1.5 ft

$60 = 2(28.5) + 3$

$60 = 57 + 3$

$60 = 60$

$28.5 \times 2 = 57$ Length

3 left over

$3 \div 2 = 1.5$ width

Guide Paper 7

Paper	RF Number	Score	Notes
g07	N/A	0	**Score Point 0** This response is incorrect. The incorrect equation is used for perimeter and the procedure used to determine the width is not sufficient to demonstrate even a limited understanding of the mathematical concepts.

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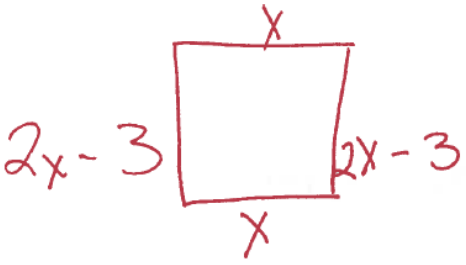
Determine the dimensions, in feet, of his new garden.

Show your work.



2x-3
2x-3
1x
1x
6x-6

Answer 6x - 6

Paper	RF Number	Score	Notes
g08	N/A	0	**Score Point 0** This response is incorrect. The correct dimensions are determined in terms of *x* and the four sides are added. However, this expression (6*x*-6) is never equated to the value given for the perimeter and no final values are determined for the dimensions. While this response contains some correct mathematical procedures, there is not enough work completed to demonstrate even a limited understanding of the mathematical concepts embodied in the task.

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Practice Set

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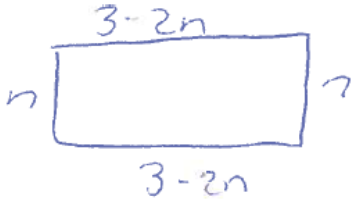
Determine the dimensions, in feet, of his new garden.



Show your work.

1=3-2n

2: 2n n

$6-4n+n=60$

$6-5n=60$

$-6 \quad -6$

$\frac{-5n}{-5} = \frac{54}{-5}$

$n = -19$

$3-2n+n=60$

$3-3n=60$

$-3 \quad -3$

$\frac{-3n}{-3} = \frac{57}{-3}$

$n = -19$

Answer -19

Practice Set 1

1 David currently has a square garden. He wants to redesign his garden and make it into a rectangle with a length that is 3 feet shorter than twice its width. He decides that the perimeter should be 60 feet.

Determine the dimensions, in feet, of his new garden.

Show your work.

width is w

length is $l = 2w - 3$

$P = 60$

$2 \times (2w - 3 + w)$

$2 \times (3w - 3)$

$6w - 6 = 60$

$6w = 66$

$w = 11$

Answer 11 and 19

Practice Set 2

1 David currently has a square garden. He wants to redesign his garden and make it into a rectangle with a length that is 3 feet shorter than twice its width. He decides that the perimeter should be 60 feet.

Determine the dimensions, in feet, of his new garden.

Show your work.

x = width
2x - 3 = length

2x - 3
2x - 3
x
x

6x - 6 = 66
+6 +6

6x = 66
6 6

x = 11

11
x 2
22
22

Answer w = 11 / L = 22

1 David currently has a square garden. He wants to redesign his garden and make it into a rectangle with a length that is 3 feet shorter than twice its width. He decides that the perimeter should be 60 feet.

Determine the dimensions, in feet, of his new garden.

Show your work.

x = width

$2x - 3$ = length

$2(21) - 3$

$2x - 3 + x = 60$

$3x - 3 = 60$

$+3 \quad +3$

$\frac{3x}{3} = \frac{63}{3}$

$x = 21$

Answer width = 21 ft

length = 39 ft.

$21 \times 2 = 42$

$42 - 3 = 39$

Practice Set 4

1 David currently has a square garden. He wants to redesign his garden and make it into a rectangle with a length that is 3 feet shorter than twice its width. He decides that the perimeter should be 60 feet.

Determine the dimensions, in feet, of his new garden.

Show your work.

$60 \div 2 = 30$

$2x - 3 + x = 30$

$2x + x = 30 + 3$

$3x = 33$

$x = 11$

width $= 11$ feet

$11 \cdot 2 - 3 = 19$

length $= 19$ feet

Answer width $= 11$ feet, length $= 19$ feet

Practice Set 5