Math Virtual Learning

HS/Essential Math II

May 7, 2020
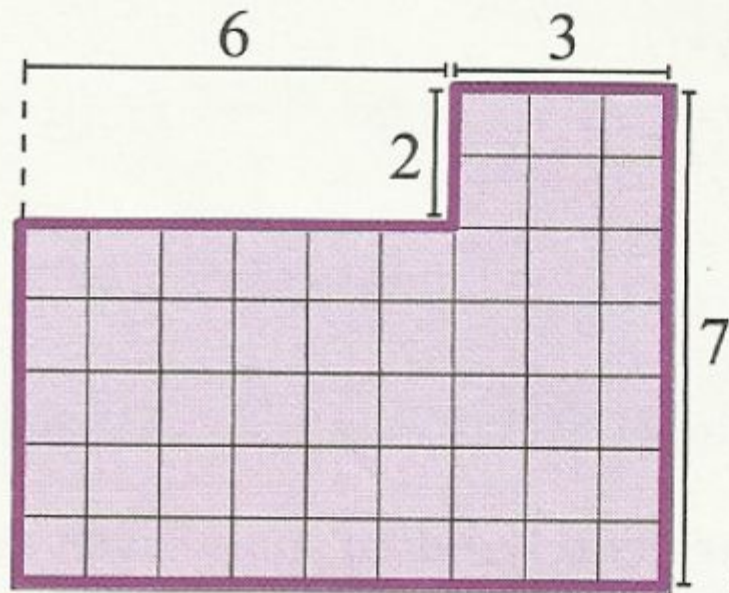
High School/Essentials of Algebra Course 2
Lesson: May 7, 2020(U4L3)Part 2
Objective/Learning Target:

● Understand the relationship between area & multiplication & use it to reason about numerical & polynomial multiplication.
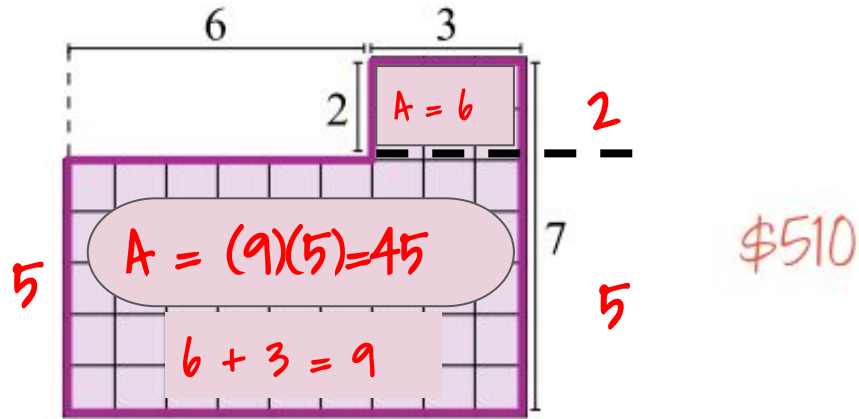
Do Now

If carpet costs $10 per square foot, how much money would it cost to carpet this room?

Do Now Answer:

If carpet costs $10 per square foot, how much money would it cost to carpet this room?

6   3

2   A = 6

2

A = (9)(5)=45

6 + 3 = 9

5   5   7

$510

top rectangle: $3 \cdot 2 = 6$ ft²
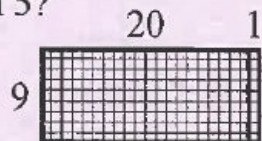
bottom rectangle:
$(6 + 3)(7 - 2) = 9 \cdot 5 = 45$ ft²

$\$10 \cdot (6 + 45) = \$510$

Lesson

Discuss & Write What You Think

⑦ How is the *area* of this 21 • 9 rectangle related to the area of the 20 • 9 rectangle in problem 5?

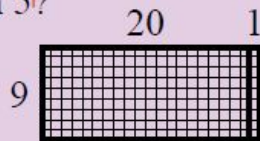⑧ How is the *perimeter* of a 21 • 9 rectangle related to the perimeter of the 20 • 9 rectangle in problem 5?

Lesson

Discuss & Write What You Think

(Responses to these questions will vary. Examples shown.)

(7) How is the *area* of this 21 • 9 rectangle related to the area of the 20 • 9 rectangle in problem 5?
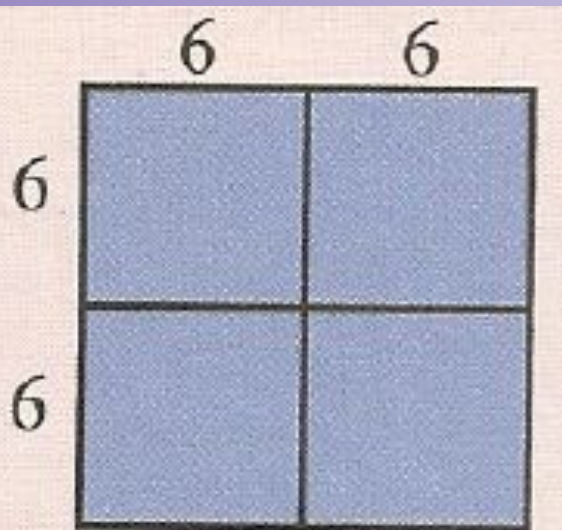
The area of this rectangle is 9 more, so 189, because there is one more column of 9 units.

(8) How is the *perimeter* of a 21 • 9 rectangle related to the perimeter of the 20 • 9 rectangle in problem 5?

The perimeter of this rectangle is 2 more, so 60, because there is one more unit along the top and one more unit along on the bottom.
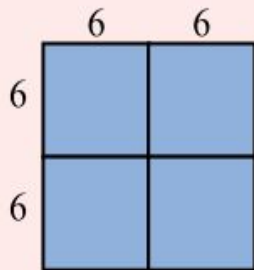
Stuff to Make You Think

33 Explain how this model shows that 12 • 12 is the same as (6 + 6) • (6 + 6).

34 Explain how the same model shows that 12 • 12 is the same as 36 • 4.

Stuff to Make You Think

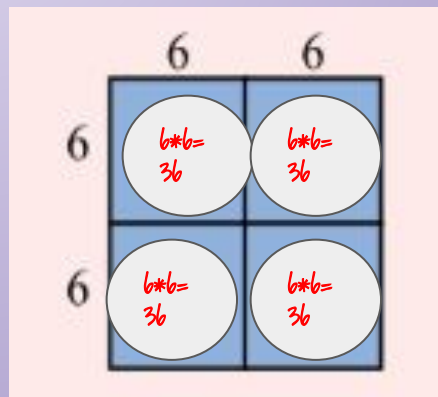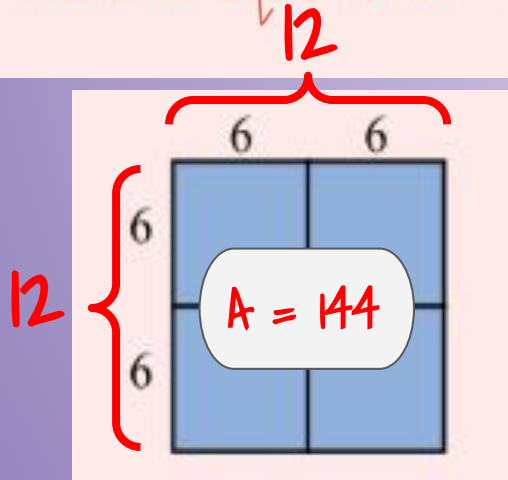**33** Explain how this model shows that 12 • 12 is the same as (6 + 6) • (6 + 6).

Each 6 + 6 side of the model has a length of 12. So, the total area of the model is equal to 12 • 12.

34 Explain how the same model shows that 12 • 12 is the same as 36 • 4.

Each 6 • 6 partial area in the model has an area of 36. Since there are 4 of them, the total area of the 12 • 12 model is 36 • 4.
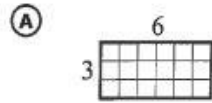
6   6
6
6

12

6   6

6

12

6

A = 144

6   6

6   6*6= 36   6*6= 36

6   6*6= 36   6*6= 36

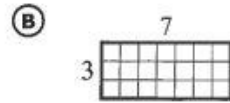= 36 + 36 + 36 + 36
= 4 (36)
= 144

Additional Practice

Area= Length x Width

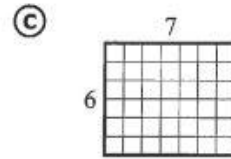**Perimeter = Add all the sides together**
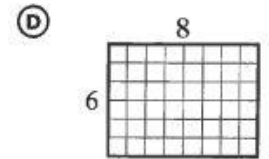
Determine both the area and perimeter of each figure.
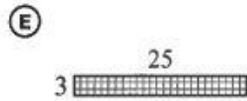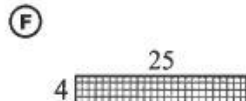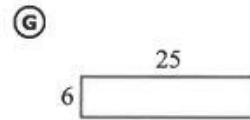
Ⓐ
6
3

Area: _____

Perimeter: _____

Ⓑ
7
3

Area: _____

Perimeter: _____

Ⓒ
7
6

Area: _____

Perimeter: _____

Ⓓ
8
6

Area: _____

Perimeter: _____

Ⓔ
25
3

Area: _____

Perimeter: _____

Ⓕ
25
4

Area: _____

Perimeter: _____

Ⓖ
25
6

Area: _____

Perimeter: _____

Ⓗ
h
g

Area: _____

Perimeter: _____

Ⓘ
10   3
4

$4 \cdot 13 = 4 \cdot 10 + 4 \cdot 3$

= [____] + [____] = [____]
(total area)

Ⓙ
10   7
5
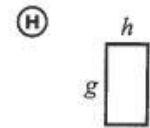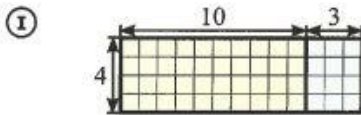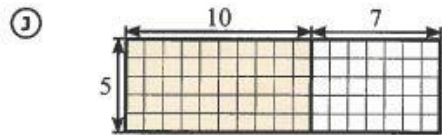
$5 \cdot 17 = 5 \cdot 10 + 5 \cdot 7$
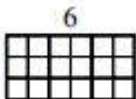
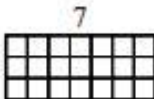= [____] + [____] = [____]
(total area)
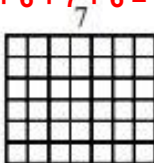
Use the area models to multiply.

Key

Determine both the area and perimeter of each figure.
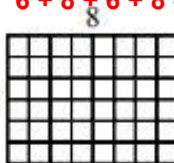
(A)

6

3

6 * 3 = 18
6 + 3 + 6 + 3 = 18

Area: 18

Perimeter: 18

(B)
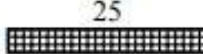
7

3

7 * 3 = 21
7 + 3 + 7 + 3= 20

Area: 21

Perimeter: 20

(C)

7 * 6 = 42
7 + 6 + 7 + 6 = 26

7

6

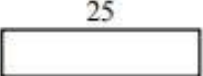Area: 42

Perimeter: 26

(D)

8 * 6 = 48
6 + 8 + 6 + 8 = 28

8

6

Area: 48

Perimeter: 28

(E)

25

3

25 * 3 = 75
25 + 3 + 25 + 3 = 56

Area: 75

Perimeter: 56

(F)

25 * 4 = 100
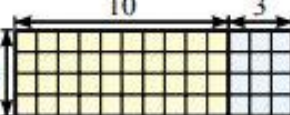
25

4

25 + 4 + 25 + 4 = 58

Area: 100

Perimeter: 58

(G)

25 *6 = 150

25

6

25 + 6 + 25 + 6 = 62

Area: 150

Perimeter: 62

(H)
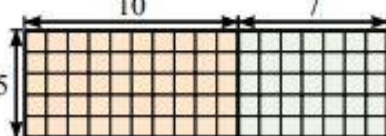
h

g

g * h = gh

g + h + g + h

= 2g + 2h

Area: gh

Perimeter: 2g + 2h

(I)

10   3

4

$4 \cdot 13 = 4 \cdot 10 + 4 \cdot 3$

= 40 + 12 = 52
(total area)

(J)

10   7

5

$5 \cdot 17 = 5 \cdot 10 + 5 \cdot 7$

= 50 + 35 = 85
(total area)

Lesson: April 30, 2020 (U4L1 part II)
Today you:

Built your working memory & the ability to coordinate multiple constraints.
Sharpened familiarity with properties of numbers & operations
Sharpened arithmetic skills (recognizing multiples, factors, etc.)

For additional practice, click the link: **Solve Me Mystery Grids**