Inspiring Greatness

ISD

INDEPENDENCE SCHOOL DISTRICT

Math Virtual Learning

HS/Essential Math II

May 11, 2020

High School/Essential Math 2
Lesson: May 11, 2020
(U4L4 Part II)

Objective/Learning Target:

Use area model thinking to apply the distributive property to multiplication problems.

Discuss & Write What You Think

(14) Which area model represents a different problem than the others?

(A)

	10	1
60		
5		

(B)

	60	5
10		
1		

(C)

	10	1
5		
60		

(D)

	60	1
10		
5		

(15) Describe how to tell the difference without doing any calculations.

Bellwork

Discuss & Write What You Think

(14) Which area model represents a different problem than the others? D

(A)

	10	1
60	600	60
5	50	5

(B)

	60	5
10	600	50
1	60	5

(C)

	10	1
5	50	5
60	600	60

(D)

	60	1
10	600	10
5	300	5

(15) Describe how to tell the difference without doing any calculations.

The problem for A, B, and C is 65 • 11, but for letter D, it is 61 • 15.

Bellwork

Algebraic Habits of Mind: Using Tools Strategically

Using area models is not a "new way" to multiply. It's a way to sort out and organize your reasoning about multiplication. You can draw out a model to multiply two numbers on paper or you can imagine one when you do mental mathematics.

③

	50	2
3	150	

$3 \cdot 52 = 3 \cdot 50 + 3 \cdot 2$

$= \_\_\_\_ + \_\_\_\_$

$= \_\_\_\_$

Lesson

Algebraic Habits of Mind: ***Using Tools Strategically***

Using area models is not a "new way" to multiply. It's a way to sort out and organize your reasoning about multiplication. You can draw out a model to multiply two numbers on paper or you can imagine one when you do mental mathematics.

③

	50	2
3	150	6

$3 \cdot 52 = 3 \cdot 50 + 3 \cdot 2$

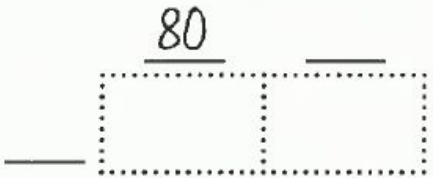
$= 150 + 6$

$= 156$

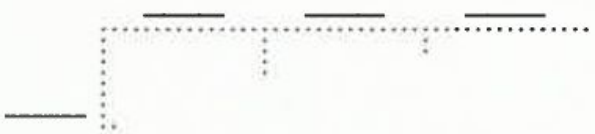
Lesson Answer

Draw an area model and use it to multiply.

⑧ $4 \cdot 83 =$ _____

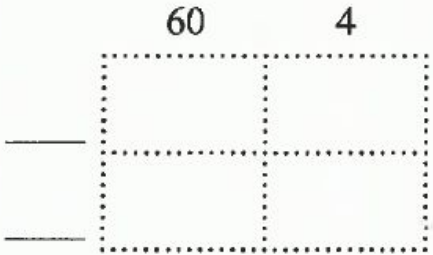


⑨ $2 \cdot 498 =$ _____



⑩ $6 \cdot 51 =$ _____

⑪ $15 \cdot 64 =$ _____



⑫ $35 \cdot 154 =$ _____

⑬ What problem is shown here, and what is the answer?

	30	3
20	600	60
1	30	3

Lesson

Draw an area model and use it to multiply.

⑧ $4 \cdot 83 =$ 332

80 + 3 = 83

4	320	12

⑨ $2 \cdot 498 =$ 996

400 + 90 + 8 = 498

2	800	180	16

⑩ $6 \cdot 51 =$ 306

50 + 1 = 51

6	300	6

⑪ $15 \cdot 64 =$ 960

60 + 4 = 64

10	600	40
+ 5	300	20
83		

⑫ $35 \cdot 154 =$ 5390

100 + 50 + 4 = 154

30	3000	1500	120
+ 5	500	250	20
35			

⑬ What problem is shown here, and what is the answer?

	30	3
20	600	60
1	30	3

$33 \cdot 21 = 693$

Lesson Key

Match each numerical expression with one of the area models.
You may use the same model more than once.

28. $(3 + 4)^2$

29. $3 \cdot 4^2$

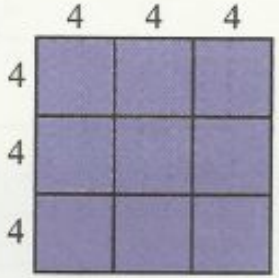
30. $(3 \cdot 4)^2$

31. $3^2 + 4^2$

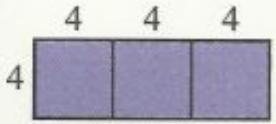
32. $3^2 + 4^2 + 2 \cdot 3 \cdot 4$

33. $3^2 \cdot 4^2$

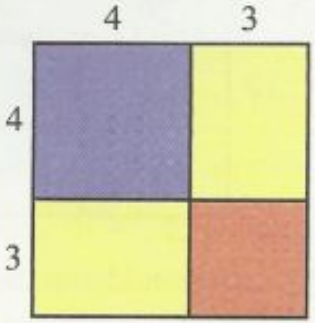
A.



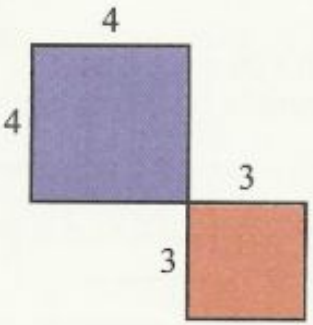
C.



B.



D.



Find the total area of each of the shapes.

34. Shape A

35. Shape B

36. Shape C

37. Shape D

Stuff to Make You Think

Match each numerical expression with one of the area models.
You may use the same model more than once.

28. $(3 + 4)^2$ B

29. $3 \cdot 4^2$ C

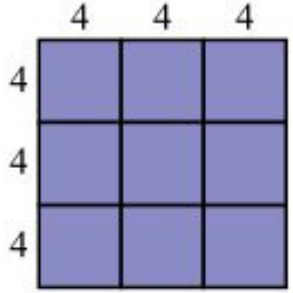
30. $(3 \cdot 4)^2$ A

31. $3^2 + 4^2$ D

32. $3^2 + 4^2 + 2 \cdot 3 \cdot 4$ B

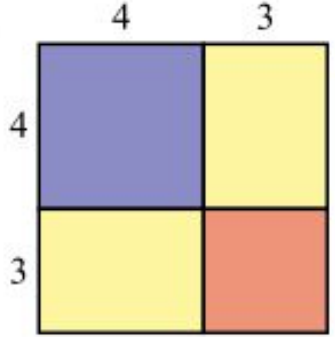
33. $3^2 \cdot 4^2$ A

A

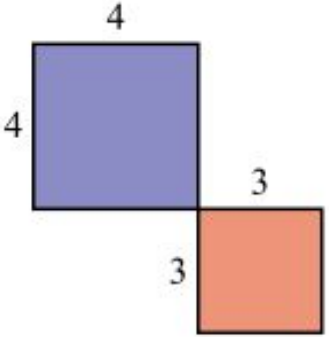


C

B



D



Find the total area of each of the shapes.

34. Shape A
144 units^2

35. Shape B
49 units^2

36. Shape C
48 units^2

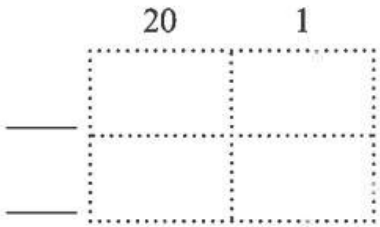
37. Shape D
25 units^2

ANSWERS: Stuff To Make You Think

Additional Practice

Draw an area model and use it to multiply.

Ⓖ $45 \cdot 21 =$ _____



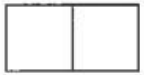
Ⓗ $2 \cdot 842 =$ _____

Ⓘ $53 \cdot 24 =$ _____

Ⓙ $152 \cdot 48 =$ _____

Ⓚ Who Am I?

- $ut = 25$.



Ⓛ MysteryGrid **1, 2, 3, 6**

3,•		24,•	
36,•		6	
		9,•	
2	5,–		

The example shows a way to rewrite the factors to make it more convenient to represent the calculation in an area model.

Rewrite each problem by splitting up the factors using place value.

G. **800+40+100+5=945**

40*20=800 40*1=40 50*20=100 5*1=5

H. **1600+80+4=1684**

800*2=1600 40*2=80 2*2=4

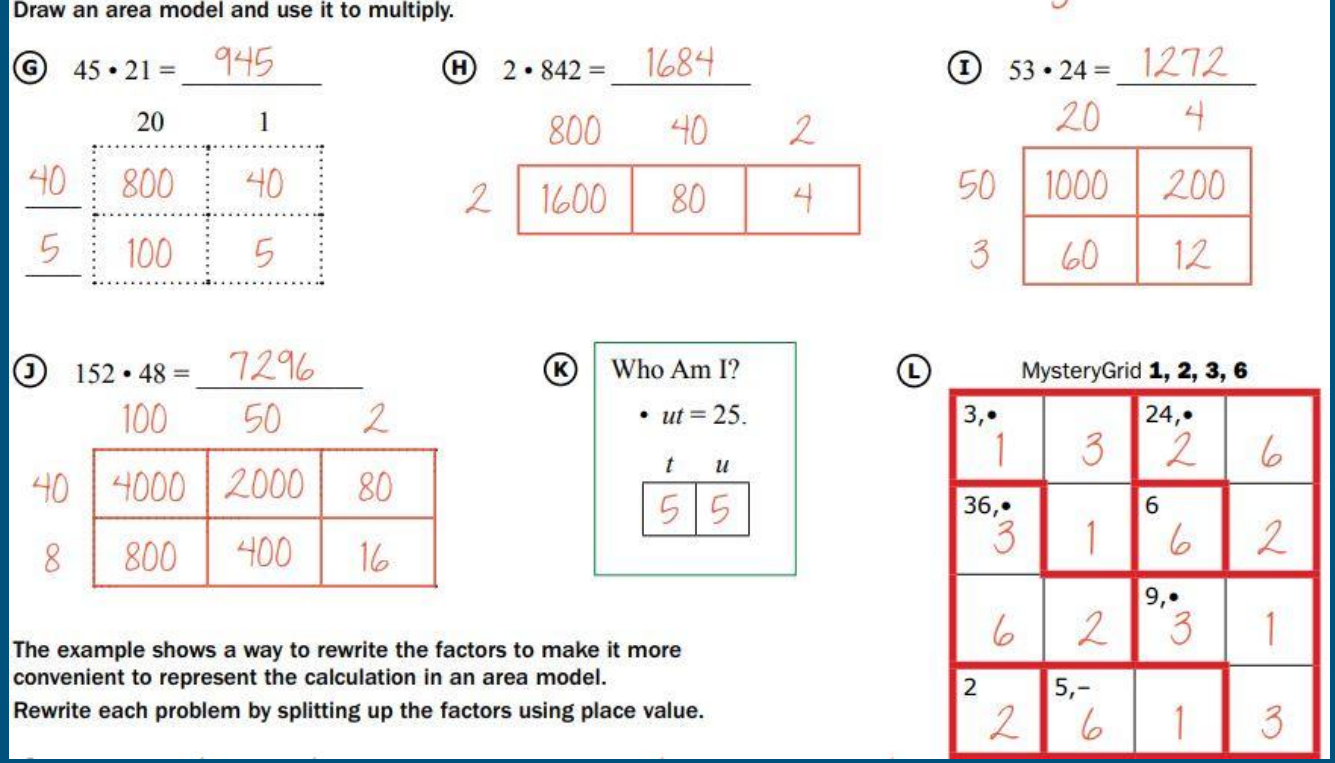
I **1000+200+60+12= 1272**

50*20=100 50*4=200 20*3=60 3*4=12

J. **4000+2000+80+800+400+16= 7296**

40*100=400 40*50=2000 40*2=80

8*100=800 50*8=400 8*2=16



Draw an area model and use it to multiply.

(G) 45 • 21 = 945

	20	1
40	800	40
5	100	5

(H) 2 • 842 = 1684

	800	40	2
2	1600	80	4

(I) 53 • 24 = 1272

	20	4
50	1000	200
3	60	12

(J) 152 • 48 = 7296

	100	50	2
40	4000	2000	80
8	800	400	16

(K) Who Am I?

• $ut = 25$.

t	u
5	5

(L) MysteryGrid **1, 2, 3, 6**

3,• 1	3	24,• 2	6
36,• 3	1	6 6	2
6	2	9,• 3	1
2 2	5,– 6	1	3

The example shows a way to rewrite the factors to make it more convenient to represent the calculation in an area model.

Rewrite each problem by splitting up the factors using place value.

Answers Additional Practice