Use the box method to find (-31) x (-26) = $\boxed{+806}$

	30	1
20	30 × 20 600	20 × 1 = 20
6	6 × 30 = 180	6 × 1 = 6

$$\begin{array}{r} 600 \\ 180 \\ 20 \\ + \quad 6 \\ \hline 806 \end{array}$$

Model (-3) x (+5)

Remove 3 groups of +5

5 shaded

= OOOOO   OOOOO   OOOOO
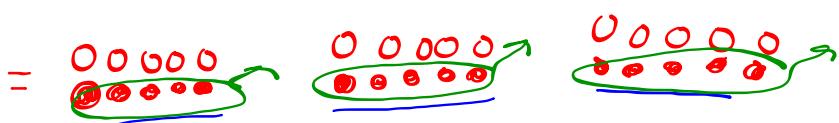
= −15

Page 83   homework solutions   o = -   ● = +

1a) (-9) x (+4) = (- 36)
        take away 9 groups of positive 4
    zero pairs needed
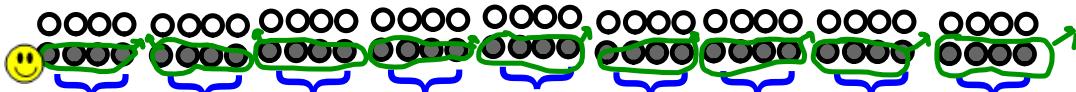
1b) (-7) x (-5) = (+ 35)
        take away 7 groups of negative 5
    zero pairs needed
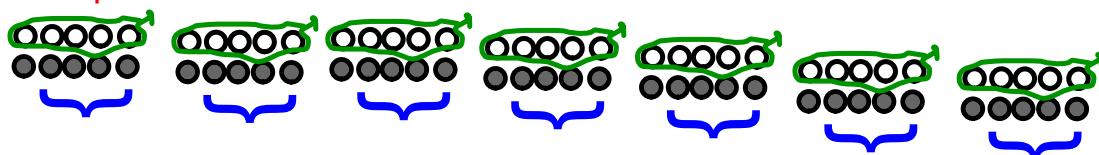
1c) (+4) x (+8) = (+ 32)
        Put down 4 groups of positive 8
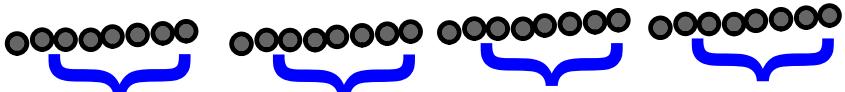
d) (+3) x (-5) = (-15)
        Put down 3 groups of negative 5

Page 83   homework solutions   *repeated x*

2) Glacier retreated 2m per day for 7 days.

   (-2) x (+7) = (-14)

   The glacier retreated 14 m in total.

3) Temp rose 4°C each hour for 5 hours

   (+4) x (+5) = (+20)

      The total temperature change is a rise of 20°C.

 4) & 5)

   a) (-8) x (+5) = (-40)

   b) (-5) x (-3) = (+15)

   c) (+12) x (-4) = (-48)

   d) (+8) x (+9) = (+72)

6)   a) (-20) x (+14)

        Rethink (20) x (14)

       = (20) x (10 + 4)

       = (20 x 10) + (20 x 4)

       = 200 + 80

       = 280

       put sign in

       (-20) x (+14) = (-280)

    b) (-19) x (-24)

        Rethink (19) x (24)

       = (10+9) x (20 + 4)

       = (10 x 20) + (10 x 4) + (9 x 20) + (9 x 4)

       =   200   +   40   +   180   +   36

       = 456

       put sign in

       (-19) x (-24) = (+456)

    c) (+40) x (+27)

        Rethink (40) x (27)

       = (40) x (20 + 7)

       = (40 x 20) + (40 x 7)

       = 800+ 280

       = 1080

       put sign in

       (+40) x (+14) = (+1080)

    d) (+13) x (-31)

         Rethink (13) x (-31)

       = (10+3) x (30 + 1)

       = (10 x 30) + (10 x 1) + (3 x 30) + (3 x 1)

       =   300   +   10   +   90   +   3

       = 403

       put sign in

       (+13) x (-31) = (-403)

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7) Pool drains 35L per minute. Find how much water drained out of the pool in 30 min. *repeat for 30min*

(-35) x (+30) =

Rethink

(35) x (30)

= (30 + 5) x (30)

= (30 x 30) + (5 x 30)

=   900   + 150

= 1050

(-35) x (+30) = -1050

Lost a total of 1050 L

8a) (+4) x (-8) = -32   8b) (-9) x (-6) = +54

8c) (-8) x (+7) = -56   8d) (-12) x (-1) = +12

9a) (+9) x (+3) = +27   9b) (-2) x (-7) = +14
9c) (+7) x (-3) = -21   9d) (-13) x (+2) = -26

11) Water level dropped 5 cm per hour. The total drop was 30 cm. How long did this take?

(-30) ÷ (-5) = +6

It took 6 hours for the water level to drop a total of 30 cm.

12) (-18) ÷ (+3)

The total debt to the librarian by 3 students was $18. If each person owed the same amount then how much did each student owe?

Rules for Division

(-) ÷ (-) = (+)

(+) ÷ (+) = (+)

Same as the
multiplication rules

(-) ÷ (+) = (-)

(+) ÷ (-) = (-)

Fill in the blanks

answer
is ⊕
the signs the same
were

1)   (-9) x (-8) = (+72)

Sign
were
different to get ⊖ ans

2)   (-28) ÷ ($+4$) = (-7)

3)   (+60) ÷ (-5) = (-12)

Division can be written...

this
symbol
means ÷

$$\frac{(-100)}{(+25)} = -4$$

Class/Homework

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#4,

#5(a,c,e,g,i),

#8(a,d),

#9(a,c),

#10(a,b,c,d),

#11(a,b),

#12(a,b),

#15(a,b,d),

#16

Key words

→ if total is given
   then divide

→ Repeated then
   multiply