TIMES TABLES

A A TOOL FOR FAST MULTIPLICATION

A.1 CALCULATING USING THE TIMES TABLE

$$7 \times 0 = 0$$
$$7 \times 1 = 7$$
$$7 \times 2 = 14$$
$$7 \times 3 = 21$$
$$7 \times 4 = 28$$
Ex 1: Given the times table of 7 $7 \times 5 = 35$,
$$7 \times 6 = 42$$
$$7 \times 7 = 49$$
$$7 \times 8 = 56$$
$$7 \times 9 = 63$$
$$7 \times 10 = 70$$

calculate $7 \times 6 = \boxed{42}$

Answer: In the times table of 7, we find

$$7 \times 6 = 42$$

$$4 \times 0 = 0$$
$$4 \times 1 = 4$$
$$4 \times 2 = 8$$
$$4 \times 3 = 12$$
$$4 \times 4 = 16$$
Ex 2: Given the times table of 4 $4 \times 5 = 20$,
$$4 \times 6 = 24$$
$$4 \times 7 = 28$$
$$4 \times 8 = 32$$
$$4 \times 9 = 36$$
$$4 \times 10 = 40$$

calculate $4 \times 9 = \boxed{36}$

Answer: In the times table of 4, we find

$$4 \times 9 = 36$$

$$8 \times 0 = 0$$
$$8 \times 1 = 8$$
$$8 \times 2 = 16$$
$$8 \times 3 = 24$$
$$8 \times 4 = 32$$
Ex 3: Given the times table of 8 $8 \times 5 = 40$,
$$8 \times 6 = 48$$
$$8 \times 7 = 56$$
$$8 \times 8 = 64$$
$$8 \times 9 = 72$$
$$8 \times 10 = 80$$

calculate $8 \times 7 = \boxed{56}$

Answer: In the times table of 8, we find

$$8 \times 7 = 56$$

$$4 \times 0 = 0$$
$$4 \times 1 = 4$$
$$4 \times 2 = 8$$
$$4 \times 3 = 12$$
$$4 \times 4 = 16$$
Ex 4: Given the times table of 4 $4 \times 5 = 20$,
$$4 \times 6 = 24$$
$$4 \times 7 = 28$$
$$4 \times 8 = 32$$
$$4 \times 9 = 36$$
$$4 \times 10 = 40$$

calculate $4 \times 7 = \boxed{28}$

Answer: In the times table of 4, we find

$$4 \times 7 = 28$$

B REVIEWING OUR FIRST TIMES TABLES

B.1 MULTIPLYING BY 2 3 4 5 10

Ex 5: $2 \times 3 = \boxed{6}$

Answer:

- $2 \times 0 = 0$
  $2 \times 1 = 2$
  $2 \times 2 = 4$
  $2 \times 3 = 6$
  $2 \times 4 = 8$
  $2 \times 5 = 10$
  $2 \times 6 = 12$
  $2 \times 7 = 14$
  $2 \times 8 = 16$
  $2 \times 9 = 18$
  $2 \times 10 = 20$
- $2 \times 3 = 6$

Ex 6: $3 \times 8 = \boxed{24}$

Answer:

- $3 \times 0 = 0$
  $3 \times 1 = 3$
  $3 \times 2 = 6$
  $3 \times 3 = 9$
  $3 \times 4 = 12$
  $3 \times 5 = 15$
  $3 \times 6 = 18$
  $3 \times 7 = 21$
  $3 \times 8 = 24$
  $3 \times 9 = 27$
  $3 \times 10 = 30$

- $3 \times 8 = 24$

Ex 7: $5 \times 8 =$ $\boxed{40}$

Answer:

- $5 \times 0 = 0$
  $5 \times 1 = 5$
  $5 \times 2 = 10$
  $5 \times 3 = 15$
  $5 \times 4 = 20$
  $5 \times 5 = 25$
  $5 \times 6 = 30$
  $5 \times 7 = 35$
  $5 \times 8 = 40$
  $5 \times 9 = 45$
  $5 \times 10 = 50$
- $5 \times 8 = 40$

Ex 8: $4 \times 4 =$ $\boxed{16}$

Answer:

- $4 \times 0 = 0$
  $4 \times 1 = 4$
  $4 \times 2 = 8$
  $4 \times 3 = 12$
  $4 \times 4 = 16$
  $4 \times 5 = 20$
  $4 \times 6 = 24$
  $4 \times 7 = 28$
  $4 \times 8 = 32$
  $4 \times 9 = 36$
  $4 \times 10 = 40$
- $4 \times 4 = 16$

Ex 9: $10 \times 2 =$ $\boxed{20}$

Answer:

- $10 \times 0 = 0$
  $10 \times 1 = 10$
  $10 \times 2 = 20$
  $10 \times 3 = 30$
  $10 \times 4 = 40$
  $10 \times 5 = 50$
  $10 \times 6 = 60$
  $10 \times 7 = 70$
  $10 \times 8 = 80$
  $10 \times 9 = 90$
  $10 \times 10 = 100$
- $10 \times 2 = 20$

Ex 10: $3 \times 5 =$ $\boxed{15}$

Answer:

- $3 \times 0 = 0$
  $3 \times 1 = 3$
  $3 \times 2 = 6$
  $3 \times 3 = 9$
  $3 \times 4 = 12$
  $3 \times 5 = 15$
  $3 \times 6 = 18$
  $3 \times 7 = 21$
  $3 \times 8 = 24$
  $3 \times 9 = 27$
  $3 \times 10 = 30$
- $3 \times 5 = 15$

Ex 11: $4 \times 7 =$ $\boxed{28}$

Answer:

- $4 \times 0 = 0$
  $4 \times 1 = 4$
  $4 \times 2 = 8$
  $4 \times 3 = 12$
  $4 \times 4 = 16$
  $4 \times 5 = 20$
  $4 \times 6 = 24$
  $4 \times 7 = 28$
  $4 \times 8 = 32$
  $4 \times 9 = 36$
  $4 \times 10 = 40$
- $4 \times 7 = 28$

Ex 12: $5 \times 1 =$ $\boxed{5}$

Answer:

- $5 \times 0 = 0$
  $5 \times 1 = 5$
  $5 \times 2 = 10$
  $5 \times 3 = 15$
  $5 \times 4 = 20$
  $5 \times 5 = 25$
  $5 \times 6 = 30$
  $5 \times 7 = 35$
  $5 \times 8 = 40$
  $5 \times 9 = 45$
  $5 \times 10 = 50$
- $5 \times 1 = 5$

Ex 13: $3 \times 7 =$ $\boxed{21}$

Answer:

- $3 \times 0 = 0$
  $3 \times 1 = 3$
  $3 \times 2 = 6$
  $3 \times 3 = 9$
  $3 \times 4 = 12$
  $3 \times 5 = 15$
  $3 \times 6 = 18$
  $3 \times 7 = 21$
  $3 \times 8 = 24$
  $3 \times 9 = 27$
  $3 \times 10 = 30$
- $3 \times 7 = 21$

Ex 14: $2 \times 8 = \boxed{16}$

Answer:

- $2 \times 0 = 0$
  $2 \times 1 = 2$
  $2 \times 2 = 4$
  $2 \times 3 = 6$
  $2 \times 4 = 8$
  $2 \times 5 = 10$
  $2 \times 6 = 12$
  $2 \times 7 = 14$
  $2 \times 8 = 16$
  $2 \times 9 = 18$
  $2 \times 10 = 20$
- $2 \times 8 = 16$

Ex 15: $10 \times 8 = \boxed{80}$

Answer:

- $10 \times 0 = 0$
  $10 \times 1 = 10$
  $10 \times 2 = 20$
  $10 \times 3 = 30$
  $10 \times 4 = 40$
  $10 \times 5 = 50$
  $10 \times 6 = 60$
  $10 \times 7 = 70$
  $10 \times 8 = 80$
  $10 \times 9 = 90$
  $10 \times 10 = 100$
- $10 \times 8 = 80$

Ex 16: $4 \times 6 = \boxed{24}$

Answer:

- $4 \times 0 = 0$
  $4 \times 1 = 4$
  $4 \times 2 = 8$
  $4 \times 3 = 12$
  $4 \times 4 = 16$
  $4 \times 5 = 20$
  $4 \times 6 = 24$
  $4 \times 7 = 28$
  $4 \times 8 = 32$
  $4 \times 9 = 36$
  $4 \times 10 = 40$
- $4 \times 6 = 24$

Ex 17: $2 \times 7 = \boxed{14}$

Answer:

- $2 \times 0 = 0$
  $2 \times 1 = 2$
  $2 \times 2 = 4$
  $2 \times 3 = 6$
  $2 \times 4 = 8$
  $2 \times 5 = 10$
  $2 \times 6 = 12$
  $2 \times 7 = 14$
  $2 \times 8 = 16$
  $2 \times 9 = 18$
  $2 \times 10 = 20$
- $2 \times 7 = 14$

Ex 18: $5 \times 7 = \boxed{35}$

Answer:

- $5 \times 0 = 0$
  $5 \times 1 = 5$
  $5 \times 2 = 10$
  $5 \times 3 = 15$
  $5 \times 4 = 20$
  $5 \times 5 = 25$
  $5 \times 6 = 30$
  $5 \times 7 = 35$
  $5 \times 8 = 40$
  $5 \times 9 = 45$
  $5 \times 10 = 50$
- $5 \times 7 = 35$

C THE 6S TIMES TABLE

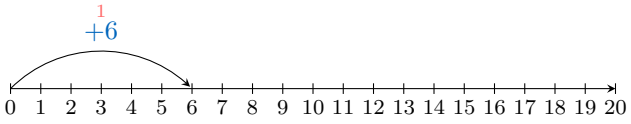
C.1 COUNTING BY 6S

Ex 19:

$1 \times 6 = \boxed{6}$

Answer:

- $1 \times 6 = 6$

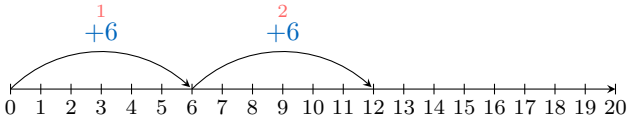


Ex 20:

$$2 \times 6 = \boxed{12}$$

Answer:

- $2 \times 6 = 6 + 6$ (counting by 6s: $6, 12$)
  $= 12$

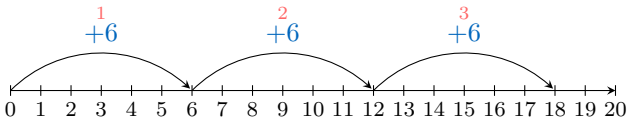


Ex 21:

$$3 \times 6 = \boxed{18}$$

Answer:

- $3 \times 6 = 6 + 6 + 6$ (counting by 6s: $6, 12, 18$)
  $= 18$

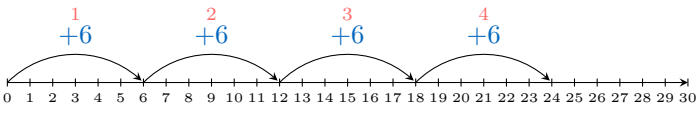


Ex 22:

$$4 \times 6 = \boxed{24}$$

Answer:

- $4 \times 6 = 6 + 6 + 6 + 6$ (counting by 6s: $6, 12, 18, 24$)
  $= 24$

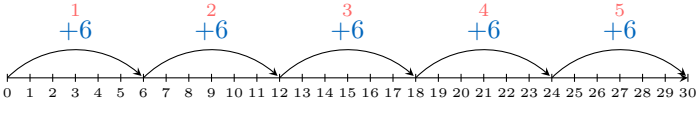


Ex 23:

$$5 \times 6 = \boxed{30}$$

Answer:

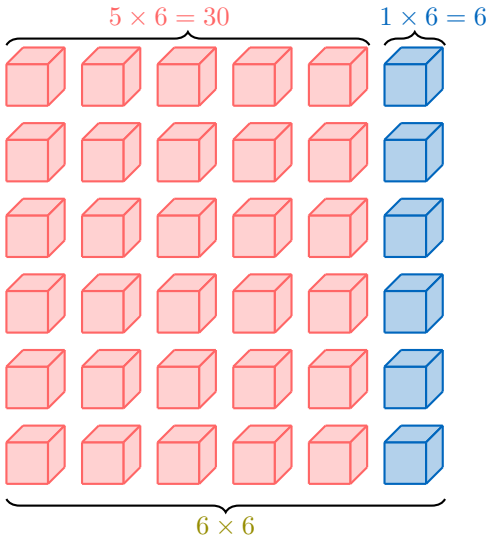
- $5 \times 6 = 6 + 6 + 6 + 6 + 6$ (counting by 6s: $6, 12, 18, 24, 30$)
  $= 30$



C.2 MULTIPLYING BY 6 USING DECOMPOSITION

Ex 24:

$$6 \times 6 = \boxed{36}$$

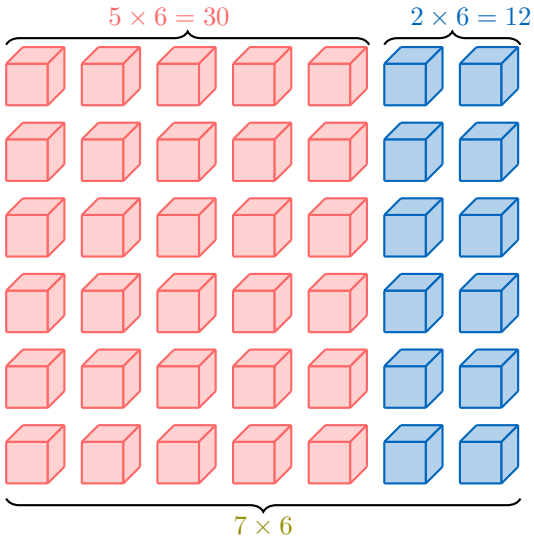


Answer:

$$\begin{aligned} 6 \times 6 &= (5 \times 6) + (1 \times 6)) \\ &= 30 + 6 \\ &= 36 \end{aligned}$$

Ex 25:

$$7 \times 6 = \boxed{42}$$

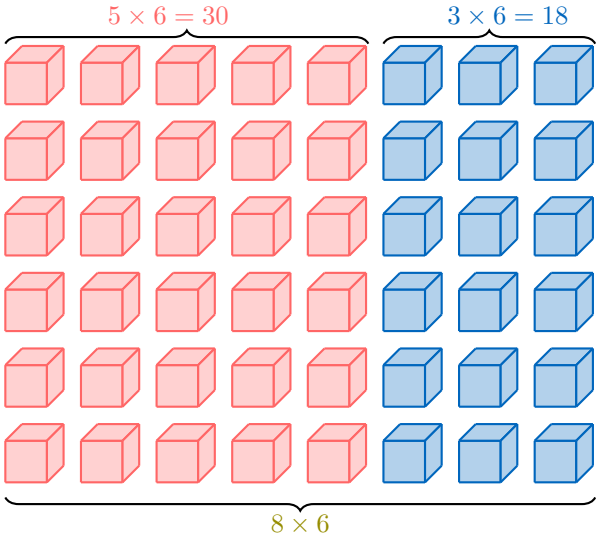


Answer:

$$\begin{aligned} 7 \times 6 &= (5 \times 6) + (2 \times 6) \\ &= 30 + 12 \\ &= 42 \end{aligned}$$

Ex 26:

$$8 \times 6 = \boxed{48}$$

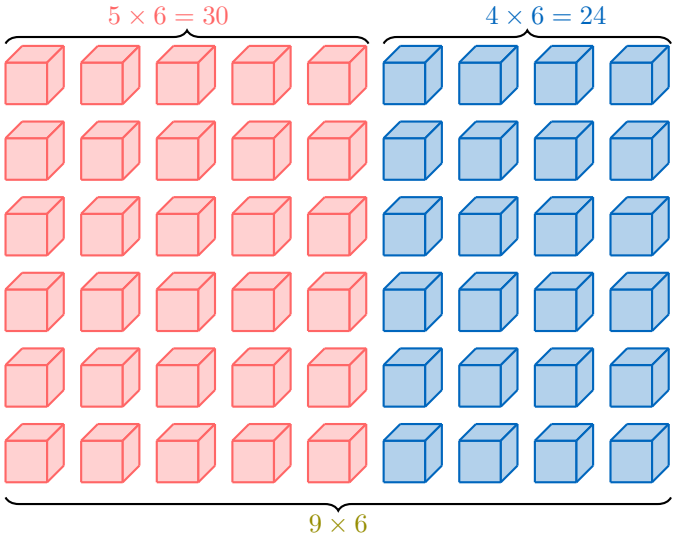


Answer:

$$\begin{aligned} 8 \times 6 &= (5 \times 6) + (3 \times 6) \\ &= 30 + 18 \\ &= 48 \end{aligned}$$

Ex 27:

$$9 \times 6 = \boxed{54}$$



Answer:

$$\begin{aligned} 9 \times 6 &= (5 \times 6) + (4 \times 6) \\ &= 30 + 24 \\ &= 54 \end{aligned}$$

C.3 MULTIPLYING BY 6

Ex 28:

$$6 \times 0 = \boxed{0}$$

Answer:

- $6 \times 0 = 0$
  $6 \times 1 = 6$
  $6 \times 2 = 12$
  $6 \times 3 = 18$
  $6 \times 4 = 24$
  $6 \times 5 = 30$
  $6 \times 6 = 36$
  $6 \times 7 = 42$
  $6 \times 8 = 48$
  $6 \times 9 = 54$
  $6 \times 10 = 60$
- $6 \times 0 = 0$

Ex 29:

$$6 \times 1 = \boxed{6}$$

Answer:

- $6 \times 0 = 0$
  $6 \times 1 = 6$
  $6 \times 2 = 12$
  $6 \times 3 = 18$
  $6 \times 4 = 24$
  $6 \times 5 = 30$
  $6 \times 6 = 36$
  $6 \times 7 = 42$
  $6 \times 8 = 48$
  $6 \times 9 = 54$
  $6 \times 10 = 60$
- $6 \times 1 = 6$

Ex 30:

$$6 \times 2 = \boxed{12}$$

Answer:

- $6 \times 0 = 0$
  $6 \times 1 = 6$
  $6 \times 2 = 12$
  $6 \times 3 = 18$
  $6 \times 4 = 24$
  $6 \times 5 = 30$
  $6 \times 6 = 36$
  $6 \times 7 = 42$
  $6 \times 8 = 48$
  $6 \times 9 = 54$
  $6 \times 10 = 60$
- $6 \times 2 = 12$

Ex 31:

$$6 \times 3 = \boxed{18}$$

Answer:

- $6 \times 0 = 0$
  $6 \times 1 = 6$
  $6 \times 2 = 12$
  $6 \times 3 = 18$
  $6 \times 4 = 24$
  $6 \times 5 = 30$
  $6 \times 6 = 36$
  $6 \times 7 = 42$
  $6 \times 8 = 48$
  $6 \times 9 = 54$
  $6 \times 10 = 60$
- $6 \times 3 = 18$

Ex 32:

$$6 \times 4 = \boxed{24}$$

Answer:

- $6 \times 0 = 0$
  $6 \times 1 = 6$
  $6 \times 2 = 12$
  $6 \times 3 = 18$
  $6 \times 4 = 24$
  $6 \times 5 = 30$
  $6 \times 6 = 36$
  $6 \times 7 = 42$
  $6 \times 8 = 48$
  $6 \times 9 = 54$
  $6 \times 10 = 60$
- $6 \times 4 = 24$

Ex 33:

$$6 \times 5 = \boxed{30}$$

Answer:

- $6 \times 0 = 0$
  $6 \times 1 = 6$
  $6 \times 2 = 12$
  $6 \times 3 = 18$
  $6 \times 4 = 24$
  $6 \times 5 = 30$
  $6 \times 6 = 36$
  $6 \times 7 = 42$
  $6 \times 8 = 48$
  $6 \times 9 = 54$
  $6 \times 10 = 60$
- $6 \times 5 = 30$

Ex 34:

$$6 \times 6 = \boxed{36}$$

Answer:

- $6 \times 0 = 0$
  $6 \times 1 = 6$
  $6 \times 2 = 12$
  $6 \times 3 = 18$
  $6 \times 4 = 24$
  $6 \times 5 = 30$
  $6 \times 6 = 36$
  $6 \times 7 = 42$
  $6 \times 8 = 48$
  $6 \times 9 = 54$
  $6 \times 10 = 60$
- $6 \times 6 = 36$

Ex 35:

$$6 \times 7 = \boxed{42}$$

Answer:

- $6 \times 0 = 0$
  $6 \times 1 = 6$
  $6 \times 2 = 12$
  $6 \times 3 = 18$
  $6 \times 4 = 24$
  $6 \times 5 = 30$
  $6 \times 6 = 36$
  $6 \times 7 = 42$
  $6 \times 8 = 48$
  $6 \times 9 = 54$
  $6 \times 10 = 60$
- $6 \times 7 = 42$

Ex 36:

$$6 \times 8 = \boxed{48}$$

Answer:

- $6 \times 0 = 0$
  $6 \times 1 = 6$
  $6 \times 2 = 12$
  $6 \times 3 = 18$
  $6 \times 4 = 24$
  $6 \times 5 = 30$
  $6 \times 6 = 36$
  $6 \times 7 = 42$
  $6 \times 8 = 48$
  $6 \times 9 = 54$
  $6 \times 10 = 60$
- $6 \times 8 = 48$

Ex 37:

$$6 \times 9 = \boxed{56}$$

Answer:

- $6 \times 0 = 0$
  $6 \times 1 = 6$
  $6 \times 2 = 12$
  $6 \times 3 = 18$
  $6 \times 4 = 24$
  $6 \times 5 = 30$
  $6 \times 6 = 36$
  $6 \times 7 = 42$
  $6 \times 8 = 48$
  $6 \times 9 = 54$
  $6 \times 10 = 60$
- $6 \times 9 = 56$

Ex 38:

$$6 \times 10 = \boxed{60}$$

Answer:

- $6 \times 0 = 0$
  $6 \times 1 = 6$
  $6 \times 2 = 12$
  $6 \times 3 = 18$
  $6 \times 4 = 24$
  $6 \times 5 = 30$
  $6 \times 6 = 36$
  $6 \times 7 = 42$
  $6 \times 8 = 48$
  $6 \times 9 = 54$
  $6 \times 10 = 60$
- $6 \times 10 = 60$

D THE 7S TIMES TABLE

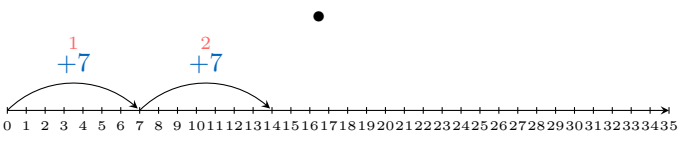
D.1 COUNTING BY 7S

Ex 39:

$$2 \times 7 = \boxed{14}$$

Answer:

- $2 \times 7 = 7 + 7$ (counting by 7s: $7, 14$)
  $= 14$

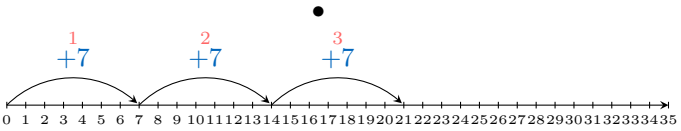


Ex 40:

$$3 \times 7 = \boxed{21}$$

Answer:

- $3 \times 7 = 7 + 7 + 7$ (counting by 7s: $7, 14, 21$)
  $= 21$

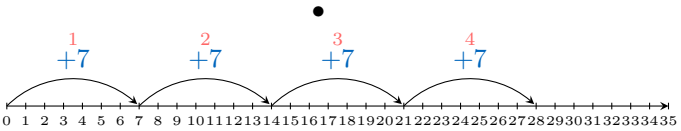


Ex 41:

$$4 \times 7 = \boxed{28}$$

Answer:

- $4 \times 7 = 7 + 7 + 7 + 7$ (counting by 7s: $7, 14, 21, 28$)
  $= 28$

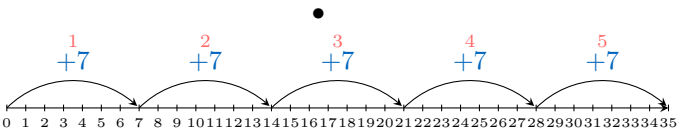


Ex 42:

$$5 \times 7 = \boxed{35}$$

Answer:

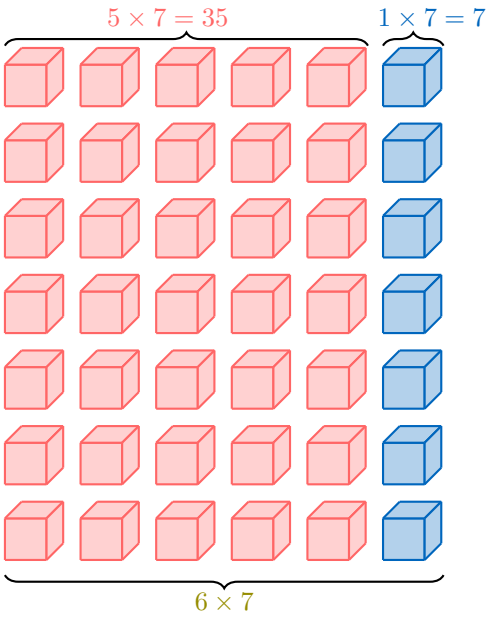
- $5 \times 7 = 7 + 7 + 7 + 7 + 7$ (counting by 7s: $7, 14, 21, 28, 35$)
  $= 35$



D.2 MULTIPLYING BY 7 USING DECOMPOSITION

Ex 43:

$$6 \times 7 = \boxed{42}$$

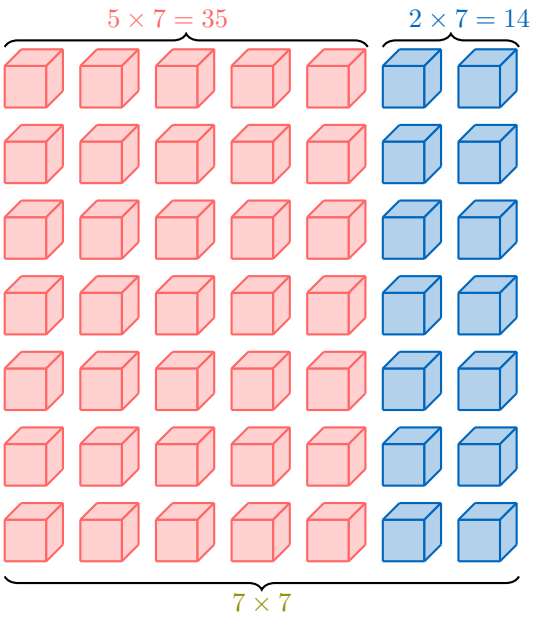


Answer:

$$\begin{aligned} 6 \times 7 &= (5 \times 7) + (1 \times 7) \\ &= 35 + 7 \\ &= 42 \end{aligned}$$

Ex 44:

$$7 \times 7 = \boxed{49}$$

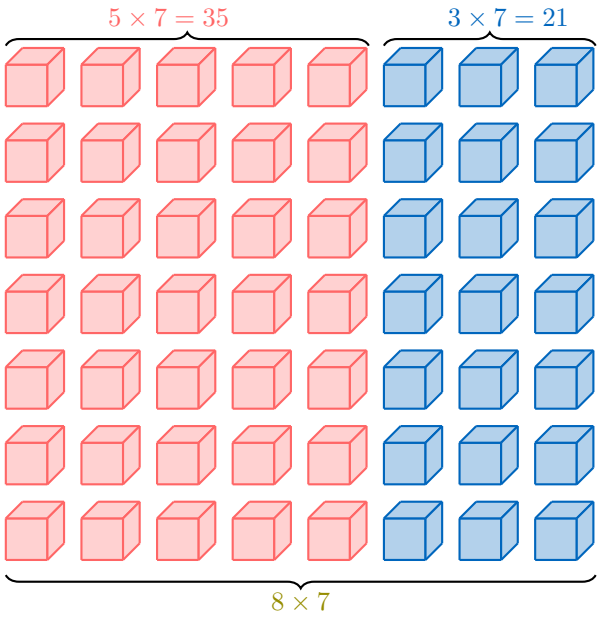


Answer:

$$\begin{aligned} 7 \times 7 &= (5 \times 7) + (2 \times 7) \\ &= 35 + 14 \\ &= 49 \end{aligned}$$

Ex 45:

$$8 \times 7 = \boxed{56}$$



Answer:

$$\begin{aligned} 8 \times 7 &= (5 \times 7) + (3 \times 7) \\ &= 35 + 21 \\ &= 56 \end{aligned}$$

D.3 MULTIPLYING BY 7

Ex 46:

$$7 \times 0 = \boxed{0}$$

Answer:

- $7 \times 0 = 0$
  $7 \times 1 = 7$
  $7 \times 2 = 14$
  $7 \times 3 = 21$
  $7 \times 4 = 28$
  $7 \times 5 = 35$
  $7 \times 6 = 42$
  $7 \times 7 = 49$
  $7 \times 8 = 56$
  $7 \times 9 = 63$
  $7 \times 10 = 70$

- $7 \times 0 = 0$

Ex 47:

$$7 \times 1 = \boxed{7}$$

Answer:

- $7 \times 0 = 0$
  $7 \times 1 = 7$
  $7 \times 2 = 14$
  $7 \times 3 = 21$
  $7 \times 4 = 28$
  $7 \times 5 = 35$
  $7 \times 6 = 42$
  $7 \times 7 = 49$
  $7 \times 8 = 56$
  $7 \times 9 = 63$
  $7 \times 10 = 70$
- $7 \times 1 = 7$

Ex 48:

$$7 \times 2 = \boxed{14}$$

Answer:

- $7 \times 0 = 0$
  $7 \times 1 = 7$
  $7 \times 2 = 14$
  $7 \times 3 = 21$
  $7 \times 4 = 28$
  $7 \times 5 = 35$
  $7 \times 6 = 42$
  $7 \times 7 = 49$
  $7 \times 8 = 56$
  $7 \times 9 = 63$
  $7 \times 10 = 70$
- $7 \times 2 = 14$

Ex 49:

$$7 \times 3 = \boxed{21}$$

Answer:

- $7 \times 0 = 0$
  $7 \times 1 = 7$
  $7 \times 2 = 14$
  $7 \times 3 = 21$
  $7 \times 4 = 28$
  $7 \times 5 = 35$
  $7 \times 6 = 42$
  $7 \times 7 = 49$
  $7 \times 8 = 56$
  $7 \times 9 = 63$
  $7 \times 10 = 70$
- $7 \times 3 = 21$

Ex 50:

$$7 \times 4 = \boxed{28}$$

Answer:

- $7 \times 0 = 0$
  $7 \times 1 = 7$
  $7 \times 2 = 14$
  $7 \times 3 = 21$
  $7 \times 4 = 28$
  $7 \times 5 = 35$
  $7 \times 6 = 42$
  $7 \times 7 = 49$
  $7 \times 8 = 56$
  $7 \times 9 = 63$
  $7 \times 10 = 70$
- $7 \times 4 = 28$

Ex 51:

$$7 \times 5 = \boxed{35}$$

Answer:

- $7 \times 0 = 0$
  $7 \times 1 = 7$
  $7 \times 2 = 14$
  $7 \times 3 = 21$
  $7 \times 4 = 28$
  $7 \times 5 = 35$
  $7 \times 6 = 42$
  $7 \times 7 = 49$
  $7 \times 8 = 56$
  $7 \times 9 = 63$
  $7 \times 10 = 70$
- $7 \times 5 = 35$

Ex 52:

$$7 \times 6 = \boxed{42}$$

Answer:

- $7 \times 0 = 0$
  $7 \times 1 = 7$
  $7 \times 2 = 14$
  $7 \times 3 = 21$
  $7 \times 4 = 28$
  $7 \times 5 = 35$
  $7 \times 6 = 42$
  $7 \times 7 = 49$
  $7 \times 8 = 56$
  $7 \times 9 = 63$
  $7 \times 10 = 70$
- $7 \times 6 = 42$

Ex 53:

$$7 \times 7 = \boxed{49}$$

Answer:

- $7 \times 0 = 0$
  $7 \times 1 = 7$
  $7 \times 2 = 14$
  $7 \times 3 = 21$
  $7 \times 4 = 28$
  $7 \times 5 = 35$
  $7 \times 6 = 42$
  $7 \times 7 = 49$
  $7 \times 8 = 56$
  $7 \times 9 = 63$
  $7 \times 10 = 70$
- $7 \times 7 = 49$

Ex 54:

$$7 \times 8 = \boxed{56}$$

Answer:

- $7 \times 0 = 0$
  $7 \times 1 = 7$
  $7 \times 2 = 14$
  $7 \times 3 = 21$
  $7 \times 4 = 28$
  $7 \times 5 = 35$
  $7 \times 6 = 42$
  $7 \times 7 = 49$
  $7 \times 8 = 56$
  $7 \times 9 = 63$
  $7 \times 10 = 70$
- $7 \times 8 = 56$

Ex 55:

$$7 \times 9 = \boxed{63}$$

Answer:

- $7 \times 0 = 0$
  $7 \times 1 = 7$
  $7 \times 2 = 14$
  $7 \times 3 = 21$
  $7 \times 4 = 28$
  $7 \times 5 = 35$
  $7 \times 6 = 42$
  $7 \times 7 = 49$
  $7 \times 8 = 56$
  $7 \times 9 = 63$
  $7 \times 10 = 70$
- $7 \times 9 = 63$

Ex 56:

$$7 \times 10 = \boxed{70}$$

Answer:

- $7 \times 0 = 0$
  $7 \times 1 = 7$
  $7 \times 2 = 14$
  $7 \times 3 = 21$
  $7 \times 4 = 28$
  $7 \times 5 = 35$
  $7 \times 6 = 42$
  $7 \times 7 = 49$
  $7 \times 8 = 56$
  $7 \times 9 = 63$
  $7 \times 10 = 70$
- $7 \times 10 = 70$

E THE 8S TIMES TABLE

E.1 COUNTING BY 8S

Ex 57:

$$2 \times 8 = \boxed{16}$$

Answer:

$$\begin{aligned} 2 \times 8 &= 8 + 8 \text{ (counting by 8s: } 8, 16) \\ &= 16 \end{aligned}$$

Ex 58:

$$3 \times 8 = \boxed{24}$$

Answer:

$$\begin{aligned} 3 \times 8 &= 8 + 8 + 8 \text{ (counting by 8s: } 8, 16, 24) \\ &= 24 \end{aligned}$$

Ex 59:

$$4 \times 8 = \boxed{32}$$

Answer:

$$\begin{aligned} 4 \times 8 &= 8 + 8 + 8 + 8 \text{ (counting by 8s: } 8, 16, 24, 32) \\ &= 32 \end{aligned}$$

Ex 60:

$$5 \times 8 = \boxed{40}$$

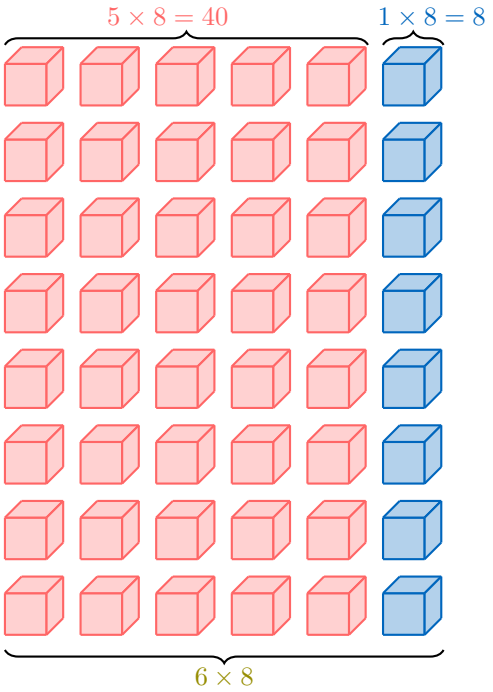
Answer:

$$\begin{aligned} 5 \times 8 &= 8 + 8 + 8 + 8 + 8 \text{ (counting by 8s: } 8, 16, 24, 32, 40) \\ &= 40 \end{aligned}$$

E.2 MULTIPLYING BY 8 USING DECOMPOSITION

Ex 61:

$6 \times 8 = \boxed{48}$

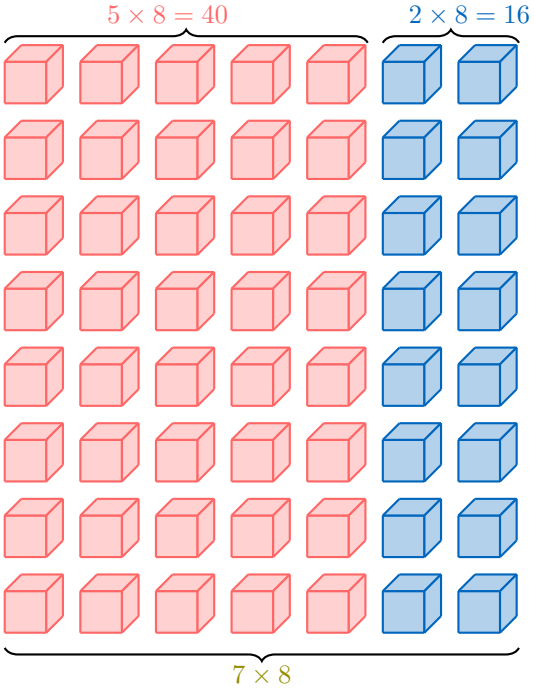


Answer:

$$\begin{aligned} 6 \times 8 &= (5 \times 8) + (1 \times 8) \\ &= 40 + 8 \\ &= 48 \end{aligned}$$

Ex 62:

$7 \times 8 = \boxed{56}$

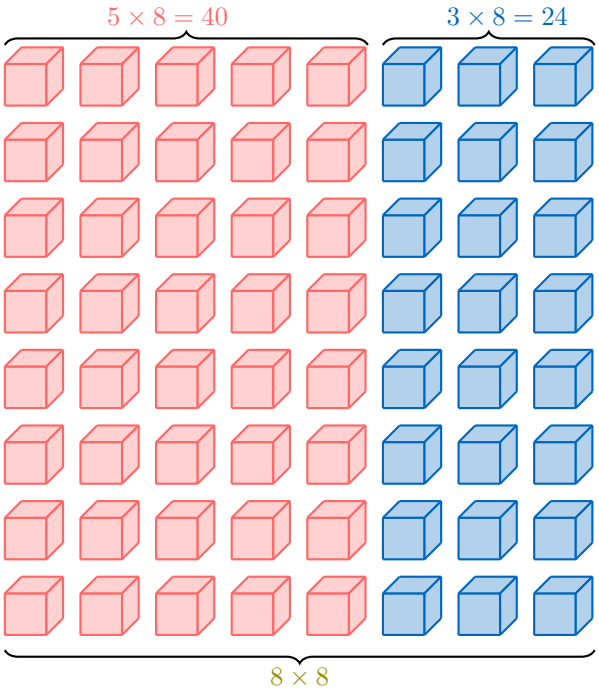


Answer:

$$\begin{aligned} 7 \times 8 &= (5 \times 8) + (2 \times 8) \\ &= 40 + 16 \\ &= 56 \end{aligned}$$

Ex 63:

$8 \times 8 = \boxed{64}$

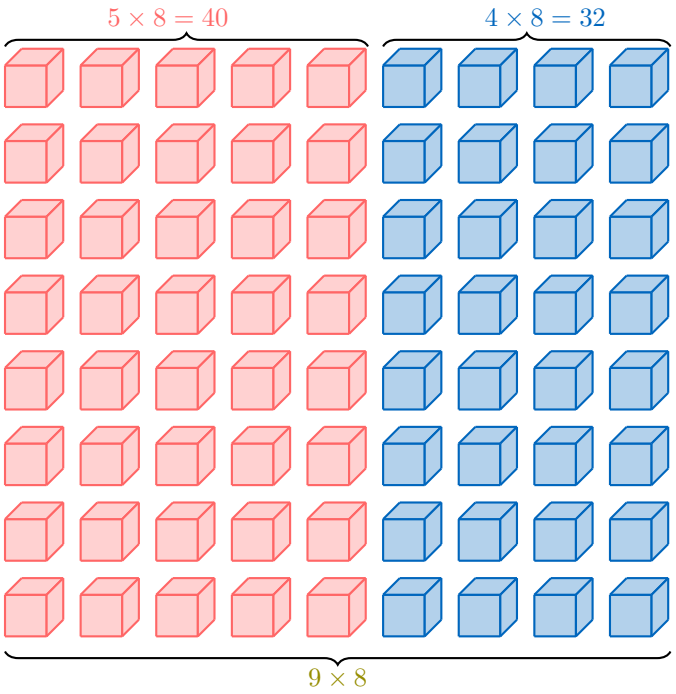


Answer:

$$\begin{aligned} 8 \times 8 &= (5 \times 8) + (3 \times 8) \\ &= 40 + 24 \\ &= 64 \end{aligned}$$

Ex 64:

$9 \times 8 = \boxed{72}$



Answer:

$$\begin{aligned} 9 \times 8 &= (5 \times 8) + (4 \times 8) \\ &= 40 + 32 \\ &= 72 \end{aligned}$$

E.3 MULTIPLYING BY 8

Ex 65:

$$8 \times 0 = \boxed{0}$$

Answer:

- $8 \times 0 = 0$
  $8 \times 1 = 8$
  $8 \times 2 = 16$
  $8 \times 3 = 24$
  $8 \times 4 = 32$
  $8 \times 5 = 40$
  $8 \times 6 = 48$
  $8 \times 7 = 56$
  $8 \times 8 = 64$
  $8 \times 9 = 72$
  $8 \times 10 = 80$
- $8 \times 0 = 0$

Ex 66:

$$8 \times 2 = \boxed{16}$$

Answer:

- $8 \times 0 = 0$
  $8 \times 1 = 8$
  $8 \times 2 = 16$
  $8 \times 3 = 24$
  $8 \times 4 = 32$
  $8 \times 5 = 40$
  $8 \times 6 = 48$
  $8 \times 7 = 56$
  $8 \times 8 = 64$
  $8 \times 9 = 72$
  $8 \times 10 = 80$
- $8 \times 2 = 16$

Ex 67:

$$8 \times 1 = \boxed{8}$$

Answer:

- $8 \times 0 = 0$
  $8 \times 1 = 8$
  $8 \times 2 = 16$
  $8 \times 3 = 24$
  $8 \times 4 = 32$
  $8 \times 5 = 40$
  $8 \times 6 = 48$
  $8 \times 7 = 56$
  $8 \times 8 = 64$
  $8 \times 9 = 72$
  $8 \times 10 = 80$
- $8 \times 1 = 8$

Ex 68:

$$8 \times 3 = \boxed{24}$$

Answer:

- $8 \times 0 = 0$
  $8 \times 1 = 8$
  $8 \times 2 = 16$
  $8 \times 3 = 24$
  $8 \times 4 = 32$
  $8 \times 5 = 40$
  $8 \times 6 = 48$
  $8 \times 7 = 56$
  $8 \times 8 = 64$
  $8 \times 9 = 72$
  $8 \times 10 = 80$
- $8 \times 3 = 24$

Ex 69:

$$8 \times 5 = \boxed{40}$$

Answer:

- $8 \times 0 = 0$
  $8 \times 1 = 8$
  $8 \times 2 = 16$
  $8 \times 3 = 24$
  $8 \times 4 = 32$
  $8 \times 5 = 40$
  $8 \times 6 = 48$
  $8 \times 7 = 56$
  $8 \times 8 = 64$
  $8 \times 9 = 72$
  $8 \times 10 = 80$
- $8 \times 5 = 40$

Ex 70:

$$8 \times 4 = \boxed{32}$$

Answer:

- $8 \times 0 = 0$
  $8 \times 1 = 8$
  $8 \times 2 = 16$
  $8 \times 3 = 24$
  $8 \times 4 = 32$
  $8 \times 5 = 40$
  $8 \times 6 = 48$
  $8 \times 7 = 56$
  $8 \times 8 = 64$
  $8 \times 9 = 72$
  $8 \times 10 = 80$

- $8 \times 4 = 32$

Ex 71:

$$8 \times 7 = \boxed{56}$$

Answer:

- $8 \times 0 = 0$
  $8 \times 1 = 8$
  $8 \times 2 = 16$
  $8 \times 3 = 24$
  $8 \times 4 = 32$
  $8 \times 5 = 40$
  $8 \times 6 = 48$
  $8 \times 7 = 56$
  $8 \times 8 = 64$
  $8 \times 9 = 72$
  $8 \times 10 = 80$
- $8 \times 7 = 56$

Ex 72:

$$8 \times 6 = \boxed{48}$$

Answer:

- $8 \times 0 = 0$
  $8 \times 1 = 8$
  $8 \times 2 = 16$
  $8 \times 3 = 24$
  $8 \times 4 = 32$
  $8 \times 5 = 40$
  $8 \times 6 = 48$
  $8 \times 7 = 56$
  $8 \times 8 = 64$
  $8 \times 9 = 72$
  $8 \times 10 = 80$
- $8 \times 6 = 48$

Ex 73:

$$8 \times 8 = \boxed{64}$$

Answer:

- $8 \times 0 = 0$
  $8 \times 1 = 8$
  $8 \times 2 = 16$
  $8 \times 3 = 24$
  $8 \times 4 = 32$
  $8 \times 5 = 40$
  $8 \times 6 = 48$
  $8 \times 7 = 56$
  $8 \times 8 = 64$
  $8 \times 9 = 72$
  $8 \times 10 = 80$
- $8 \times 8 = 64$

Ex 74:

$$8 \times 9 = \boxed{72}$$

Answer:

- $8 \times 0 = 0$
  $8 \times 1 = 8$
  $8 \times 2 = 16$
  $8 \times 3 = 24$
  $8 \times 4 = 32$
  $8 \times 5 = 40$
  $8 \times 6 = 48$
  $8 \times 7 = 56$
  $8 \times 8 = 64$
  $8 \times 9 = 72$
  $8 \times 10 = 80$
- $8 \times 9 = 72$

Ex 75:

$$8 \times 10 = \boxed{80}$$

Answer:

- $8 \times 0 = 0$
  $8 \times 1 = 8$
  $8 \times 2 = 16$
  $8 \times 3 = 24$
  $8 \times 4 = 32$
  $8 \times 5 = 40$
  $8 \times 6 = 48$
  $8 \times 7 = 56$
  $8 \times 8 = 64$
  $8 \times 9 = 72$
  $8 \times 10 = 80$
- $8 \times 10 = 80$

F THE 9S TIMES TABLE

F.1 COUNTING BY 9S

Ex 76:

$$2 \times 9 = \boxed{18}$$

Answer:

$$\begin{aligned} 2 \times 9 &= 9 + 9 \text{ (counting by 9s: } 9, 18) \\ &= 18 \end{aligned}$$

Ex 77:

$$3 \times 9 = \boxed{27}$$

Answer:

$$\begin{aligned} 3 \times 9 &= 9 + 9 + 9 \text{ (counting by 9s: } 9, 18, 27) \\ &= 27 \end{aligned}$$

Ex 78:

$$4 \times 9 = \boxed{36}$$

Answer:

$$\begin{aligned} 4 \times 9 &= 9 + 9 + 9 + 9 \text{ (counting by 9s: } 9, 18, 27, 36) \\ &= 36 \end{aligned}$$

Ex 79:

$$5 \times 9 = \boxed{45}$$

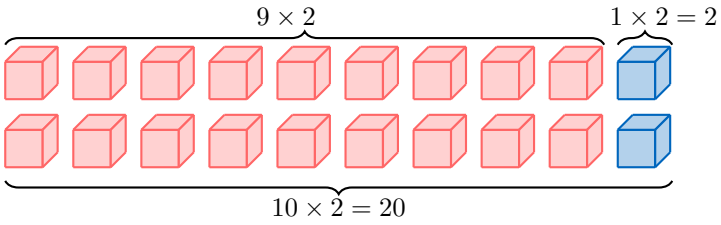
Answer:

$$\begin{aligned} 5 \times 9 &= 9 + 9 + 9 + 9 + 9 \text{ (counting by 9s: } 9, 18, 27, 36, 45) \\ &= 45 \end{aligned}$$

F.2 MULTIPLYING BY 9 USING DECOMPOSITION

Ex 80:

$$9 \times 2 = \boxed{18}$$

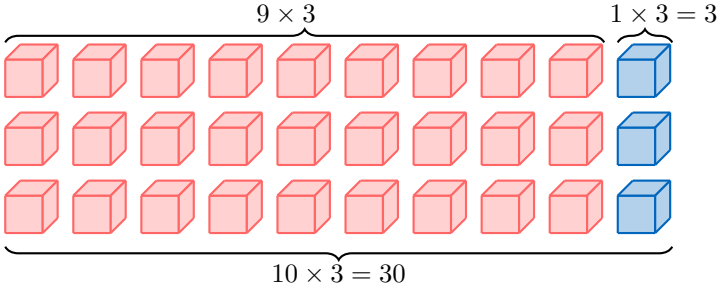


Answer:

$$\begin{aligned} 9 \times 2 &= (10 \times 2) - (1 \times 2) \\ &= 20 - 2 \\ &= 18 \end{aligned}$$

Ex 81:

$$9 \times 3 = \boxed{27}$$

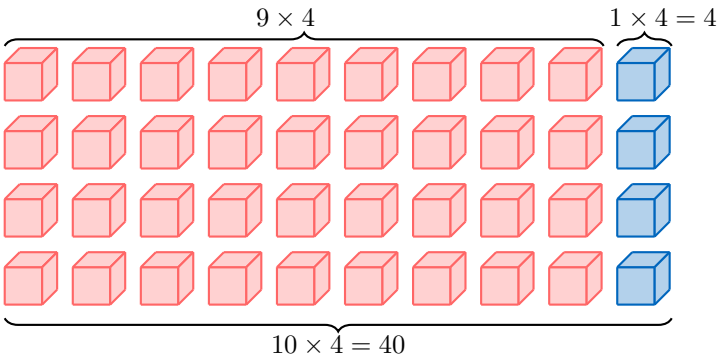


Answer:

$$\begin{aligned} 9 \times 3 &= (10 \times 3) - (1 \times 3) \\ &= 30 - 3 \\ &= 27 \end{aligned}$$

Ex 82:

$$9 \times 4 = \boxed{36}$$

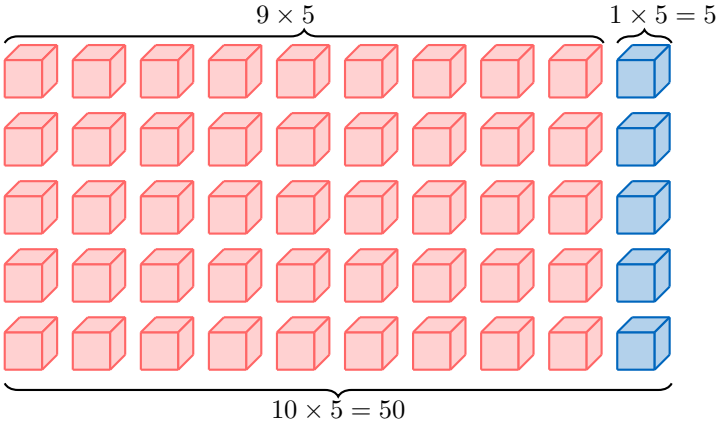


Answer:

$$\begin{aligned} 9 \times 4 &= (10 \times 4) - (1 \times 4) \\ &= 40 - 4 \\ &= 36 \end{aligned}$$

Ex 83:

$$9 \times 5 = \boxed{45}$$

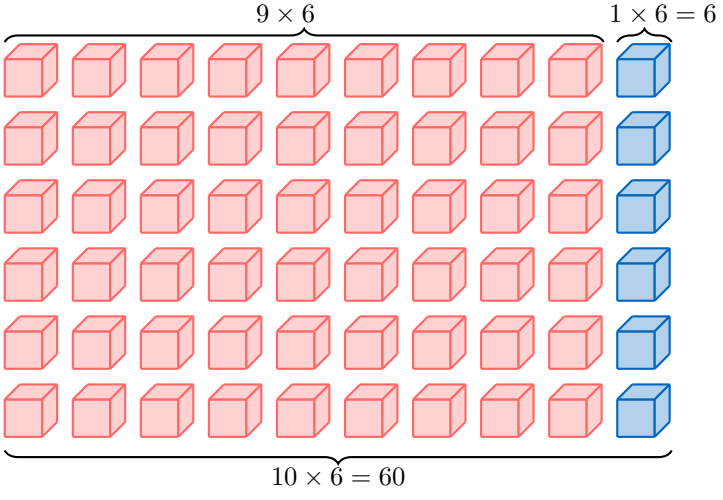


Answer:

$$\begin{aligned} 9 \times 5 &= (10 \times 5) - (1 \times 5) \\ &= 50 - 5 \\ &= 45 \end{aligned}$$

Ex 84:

$$9 \times 6 = \boxed{54}$$

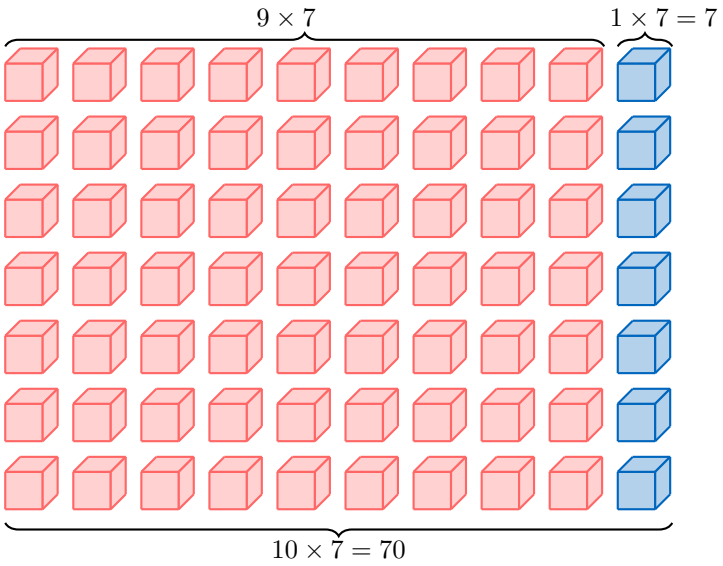


Answer:

$$\begin{aligned} 9 \times 6 &= (10 \times 6) - (1 \times 6) \\ &= 60 - 6 \\ &= 54 \end{aligned}$$

Ex 85:

$9 \times 7 = \boxed{63}$

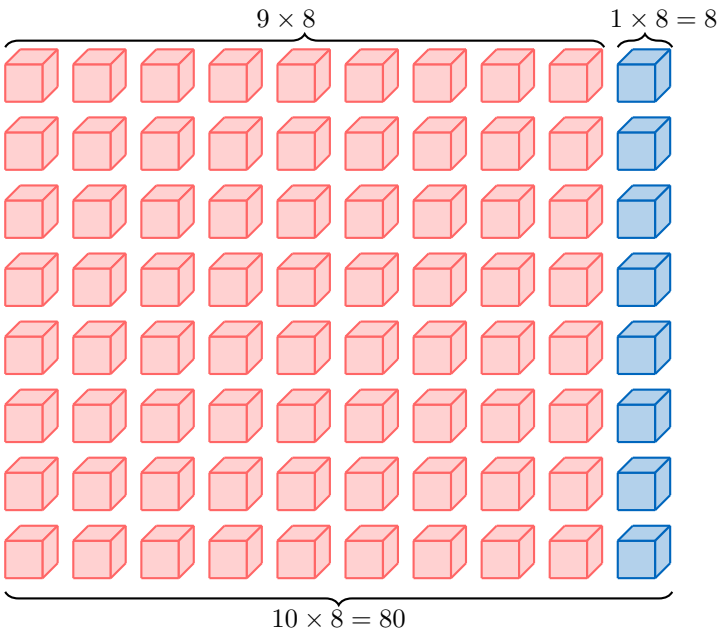


Answer:

$$\begin{aligned} 9 \times 7 &= (10 \times 7) - (1 \times 7) \\ &= 70 - 7 \\ &= 63 \end{aligned}$$

Ex 86:

$9 \times 8 = \boxed{72}$

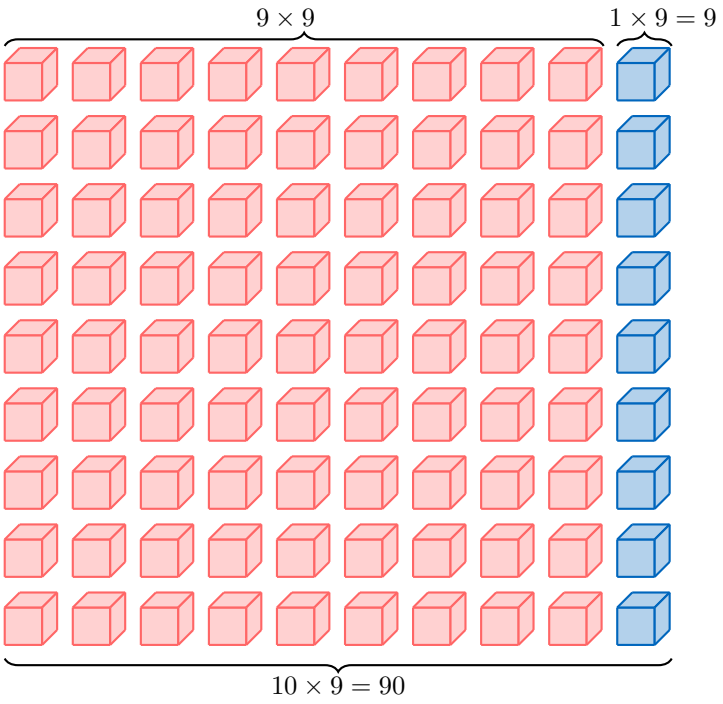


Answer:

$$\begin{aligned} 9 \times 8 &= (10 \times 8) - (1 \times 8) \\ &= 80 - 8 \\ &= 72 \end{aligned}$$

Ex 87:

$9 \times 9 = \boxed{81}$



Answer:

$$\begin{aligned} 9 \times 9 &= (10 \times 9) - (1 \times 9) \\ &= 90 - 9 \\ &= 81 \end{aligned}$$

F.3 MULTIPLYING BY 9

Ex 88:

$9 \times 0 = \boxed{0}$

Answer:

- $9 \times 0 = 0$
  $9 \times 1 = 9$
  $9 \times 2 = 18$
  $9 \times 3 = 27$
  $9 \times 4 = 36$
  $9 \times 5 = 45$
  $9 \times 6 = 54$
  $9 \times 7 = 63$
  $9 \times 8 = 72$
  $9 \times 9 = 81$
  $9 \times 10 = 90$
- $9 \times 0 = 0$

Ex 89:

$9 \times 1 = \boxed{9}$

Answer:

- $9 \times 0 = 0$
  $9 \times 1 = 9$
  $9 \times 2 = 18$
  $9 \times 3 = 27$
  $9 \times 4 = 36$
  $9 \times 5 = 45$
  $9 \times 6 = 54$
  $9 \times 7 = 63$
  $9 \times 8 = 72$
  $9 \times 9 = 81$
  $9 \times 10 = 90$
- $9 \times 1 = 9$

Ex 90:

$9 \times 2 = \boxed{18}$

Answer:

- $9 \times 0 = 0$
  $9 \times 1 = 9$
  $9 \times 2 = 18$
  $9 \times 3 = 27$
  $9 \times 4 = 36$
  $9 \times 5 = 45$
  $9 \times 6 = 54$
  $9 \times 7 = 63$
  $9 \times 8 = 72$
  $9 \times 9 = 81$
  $9 \times 10 = 90$
- $9 \times 2 = 18$

Ex 91:

$9 \times 4 = \boxed{36}$

Answer:

- $9 \times 0 = 0$
  $9 \times 1 = 9$
  $9 \times 2 = 18$
  $9 \times 3 = 27$
  $9 \times 4 = 36$
  $9 \times 5 = 45$
  $9 \times 6 = 54$
  $9 \times 7 = 63$
  $9 \times 8 = 72$
  $9 \times 9 = 81$
  $9 \times 10 = 90$
- $9 \times 4 = 36$

Ex 92:

$9 \times 6 = \boxed{54}$

Answer:

- $9 \times 0 = 0$
  $9 \times 1 = 9$
  $9 \times 2 = 18$
  $9 \times 3 = 27$
  $9 \times 4 = 36$
  $9 \times 5 = 45$
  $9 \times 6 = 54$
  $9 \times 7 = 63$
  $9 \times 8 = 72$
  $9 \times 9 = 81$
  $9 \times 10 = 90$
- $9 \times 6 = 54$

Ex 93:

$9 \times 3 = \boxed{27}$

Answer:

- $9 \times 0 = 0$
  $9 \times 1 = 9$
  $9 \times 2 = 18$
  $9 \times 3 = 27$
  $9 \times 4 = 36$
  $9 \times 5 = 45$
  $9 \times 6 = 54$
  $9 \times 7 = 63$
  $9 \times 8 = 72$
  $9 \times 9 = 81$
  $9 \times 10 = 90$
- $9 \times 3 = 27$

Ex 94:

$9 \times 5 = \boxed{45}$

Answer:

- $9 \times 0 = 0$
  $9 \times 1 = 9$
  $9 \times 2 = 18$
  $9 \times 3 = 27$
  $9 \times 4 = 36$
  $9 \times 5 = 45$
  $9 \times 6 = 54$
  $9 \times 7 = 63$
  $9 \times 8 = 72$
  $9 \times 9 = 81$
  $9 \times 10 = 90$
- $9 \times 5 = 45$

Ex 95:

$9 \times 7 = \boxed{63}$

Answer:

- $9 \times 0 = 0$
  $9 \times 1 = 9$
  $9 \times 2 = 18$
  $9 \times 3 = 27$
  $9 \times 4 = 36$
  $9 \times 5 = 45$
  $9 \times 6 = 54$
  $9 \times 7 = 63$
  $9 \times 8 = 72$
  $9 \times 9 = 81$
  $9 \times 10 = 90$
- $9 \times 7 = 63$

Ex 96:

$9 \times 10 = \boxed{90}$

Answer:

- $9 \times 0 = 0$
  $9 \times 1 = 9$
  $9 \times 2 = 18$
  $9 \times 3 = 27$
  $9 \times 4 = 36$
  $9 \times 5 = 45$
  $9 \times 6 = 54$
  $9 \times 7 = 63$
  $9 \times 8 = 72$
  $9 \times 9 = 81$
  $9 \times 10 = 90$
- $9 \times 10 = 90$

Ex 97:

$9 \times 8 = \boxed{72}$

Answer:

- $9 \times 0 = 0$
  $9 \times 1 = 9$
  $9 \times 2 = 18$
  $9 \times 3 = 27$
  $9 \times 4 = 36$
  $9 \times 5 = 45$
  $9 \times 6 = 54$
  $9 \times 7 = 63$
  $9 \times 8 = 72$
  $9 \times 9 = 81$
  $9 \times 10 = 90$
- $9 \times 8 = 72$

Ex 98:

$9 \times 9 = \boxed{81}$

Answer:

- $9 \times 0 = 0$
  $9 \times 1 = 9$
  $9 \times 2 = 18$
  $9 \times 3 = 27$
  $9 \times 4 = 36$
  $9 \times 5 = 45$
  $9 \times 6 = 54$
  $9 \times 7 = 63$
  $9 \times 8 = 72$
  $9 \times 9 = 81$
  $9 \times 10 = 90$
- $9 \times 9 = 81$

G THE FULL MULTIPLICATION GRID

G.1 MULTIPLYING BY 1 TO 10

Ex 99:

$6 \times 4 = \boxed{34}$

Answer:

×	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	72	80
9	9	18	27	36	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100
- $6 \times 4 = 24$

Ex 100:

$9 \times 3 = \boxed{27}$

Answer:

×	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	72	80
9	9	18	27	36	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100

- $9 \times 3 = 27$

Ex 101:

$$8 \times 7 = \boxed{56}$$

Answer:

×	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	**56**	64	72	80
9	9	18	27	36	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100

- $8 \times 7 = 56$

Ex 102:

$$5 \times 7 = \boxed{35}$$

Answer:

×	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	**35**	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	72	80
9	9	18	27	36	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100

- $5 \times 7 = 35$

Ex 103:

$$8 \times 6 = \boxed{48}$$

Answer:

×	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	**48**	56	64	72	80
9	9	18	27	36	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100

- $8 \times 6 = 48$

Ex 104:

$$6 \times 9 = \boxed{54}$$

Answer:

×	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	**54**	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	72	80
9	9	18	27	36	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100

- $6 \times 9 = 54$