

Sense of Arithmetic 3

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0. Fill in the blanks below using no calculator.

A.

$1 + _ = 11$

$3 + _ = 13$

$5 + _ = 15$

$_ + 10 = 12$

$4 + _ = 14$

$_ + 10 = 17$

$_ + 10 = 18$

$6 + _ = 16$

$_ + 10 = 19$

$15 = _ + 10$

$11 = _ + 10$

$14 = _ + 10$

$18 = 8 + _$

$12 = 2 + _$

$13 = _ + 10$

$19 = 9 + _$

$16 = _ + 10$

$17 = 7 + _$

B.

$$1 + 10 + _ = 111 \quad _ + 10 + 100 = 115 \quad 7 + _ + 100 = 117$$

$$2 + _ + 100 = 122 \quad 8 + 10 + _ = 318 \quad _ + 50 + 900 = 953$$

$$6 + 70 + _ = 876 \quad _ + 40 + 600 = 649 \quad 4 + _ + 500 = 534$$

C.

$$1 + 2 + 20 + 30 + 100 + 300 = _$$

$$2 + 4 + 40 + 10 + 200 + 500 = _$$

$$5 + 3 + 1 + 50 + 20 + 10 + 200 + 100 + 400 = _$$

$$1 + 4 + 2 + 30 + 20 + 40 + 300 + 400 + 200 = _$$

D. $4 + 2 + 1 + 3 + 10 + 20 + 40 + 30 + 300 + 100 + 400 + 200 = \underline{\hspace{1cm}}$

E. $200 + 30 + 60000 + 5 + 800000 + 4000 + 9000000 = \underline{\hspace{1cm}}$

1. Find all possible and different pairs of integers nonnegative so that the sum of the two in each pair is 5, and specifying each pair, put the two integers in parentheses, and use a comma to separate the two. For example, one of the pairs is (2, 3) since $2 + 3 = 5$. Note however, that (2, 3) and (3, 2) are the same.

2. Find all possible and different pairs of integers nonnegative so that the sum of the two in each pair is 10, and specify each pair the way above. For example, one of the pairs is (2, 8) since $2 + 8 = 10$. And of course, (2, 8) and (8, 2) are the same.

3. In each case below, fill in the blanks with integers nonnegative so that each case is different.

A.

$\underline{\hspace{1cm}} + \underline{\hspace{1cm}} = 3$, $\underline{\hspace{1cm}} + \underline{\hspace{1cm}} = 3$, $\underline{\hspace{1cm}} + \underline{\hspace{1cm}} = 3$, and $\underline{\hspace{1cm}} + \underline{\hspace{1cm}} + \underline{\hspace{1cm}} = 3$

What other cases can make 3 each?

B.

$$_ + _ = 7, \quad _ + _ = 7, \quad _ + _ = 7, \quad \text{and} \quad _ + _ + _ = 7$$

What other cases can make 7 each?

C.

$$_ + _ = 6, \quad _ + _ = 6, \quad _ + _ = 6, \quad \text{and} \quad _ + _ + _ = 6$$

What else?

D.

$$_ + _ = 4, \quad _ + _ = 4, \quad _ + _ = 4, \quad \text{and} \quad _ + _ + _ = 4. \quad \text{What others?}$$

E.

$$_ + _ = 2, \quad _ + _ = 2, \quad _ + _ = 2, \quad \text{and} \quad _ + _ + _ = 2. \quad \text{What others can do it?}$$

F.

$$_ + _ = 8, \quad _ + _ = 8, \quad _ + _ = 8, \quad \text{and} \quad _ + _ + _ = 8.$$

There are some others. What are they?

G.

$_ + _ = 9$, $_ + _ = 9$, $_ + _ = 9$, and $_ + _ + _ = 9$. What are others?

H.

$_ + _ = 11$, $_ + _ = 11$, $_ + _ = 11$, $_ + _ + _ = 11$,

$_ + _ + _ + _ = 11$, and $_ + _ + _ + _ + _ = 11$. What else can it be?

I.

$_ + _ = 17$, $_ + _ = 17$, $_ + _ = 17$, $_ + _ + _ = 17$,

$_ + _ + _ + _ = 17$, and $_ + _ + _ + _ + _ = 17$

What others will do it?

J.

$$_ + _ = 19, _ + _ = 19, _ + _ = 19, _ + _ + _ = 19,$$

$$_ + _ + _ + _ = 19, \text{ and } _ + _ + _ + _ + _ = 19. \text{ And what else?}$$

K.

$$_ + _ = 28, _ + _ = 28, _ + _ = 28, _ + _ + _ = 28,$$

$$_ + _ + _ + _ = 28, \text{ and } _ + _ + _ + _ + _ = 28. \text{ And if any others, what are they?}$$

L.

$$_ + _ = 39, _ + _ = 39, _ + _ = 39, _ + _ + _ = 39,$$

$$_ + _ + _ + _ = 39, \text{ and } _ + _ + _ + _ + _ = 39. \text{ What else?}$$

M.

$$_ + _ = 120, \quad _ + _ = 120, \quad _ + _ = 120, \quad _ + _ + _ = 120,$$

$$_ + _ + _ + _ = 120, \quad \text{and} \quad _ + _ + _ + _ + _ = 120. \quad \text{What else?}$$

N.

$$_ + _ = 1358, \quad _ + _ = 1358, \quad _ + _ = 1358, \quad _ + _ + _ = 1358,$$

$$_ + _ + _ + _ = 1358, \quad \text{and} \quad _ + _ + _ + _ + _ = 1358. \quad \text{And think of some more.}$$

O.

$$_ + _ = 98375, \quad _ + _ = 98375, \quad _ + _ = 98375,$$

$$_ + _ + _ + _ = 98375, \quad \text{and} \quad _ + _ + _ + _ + _ = 98375. \quad \text{And what else can do it?}$$

4. Doing problems below, use nonnegative numbers.

A.

$$_ + _ = 2.4, \quad _ + _ = 2.4, \quad _ + _ = 2.4, \quad _ + _ + _ = 2.4,$$

$$_ + _ + _ + _ = 2.4, \quad \text{and} \quad _ + _ + _ + _ + _ = 2.4. \quad \text{And what else?}$$

B.

$$_ + _ = 0.5, \quad _ + _ = 0.5, \quad _ + _ = 0.5, \quad _ + _ + _ = 0.5,$$

$$_ + _ + _ + _ = 0.5, \quad \text{and} \quad _ + _ + _ + _ + _ = 0.5. \quad \text{And what else?}$$

C.

$$_ + _ = 0.01, \quad _ + _ = 0.01, \quad _ + _ = 0.01, \quad _ + _ + _ = 0.01,$$

$$_ + _ + _ + _ = 0.01, \quad \text{and,} \quad _ + _ + _ + _ + _ = 0.01. \quad \text{What others can do it?}$$

D.

$$_ + _ = 0.0034, \quad _ + _ = 0.0034, \quad _ + _ = 0.0034,$$

$$_ + _ + _ = 0.0034, \quad _ + _ + _ + _ = 0.0034, \text{ and}$$

$$_ + _ + _ + _ + _ = 0.0034. \quad \text{Anything else?}$$

E.

$$_ + _ = 0.9738, \quad _ + _ = 0.9738, \quad _ + _ = 0.9738,$$

$$_ + _ + _ = 0.9738, \quad _ + _ + _ + _ = 0.9738, \text{ and}$$

$$_ + _ + _ + _ + _ = 0.9738. \quad \text{And any others?}$$

5. Fill in the blanks with appropriate numbers.

A.

$$1 + _ = 1.9 \quad _ + 0.4 = 3.4 \quad 2 + _ = 2.6 \quad _ + 0.2 = 7.2$$

B.

$$\underline{\hspace{1cm}} + 2 + 0.4 = 32.4 \quad 10 + \underline{\hspace{1cm}} + 0.8 = 19.8 \quad 70 + 1 + \underline{\hspace{1cm}} = 71.04$$

C.

$$\underline{\hspace{1cm}} + 40 + 6 + 0.002 = 846.002 \quad 300 + 70 + 4 + \underline{\hspace{1cm}} = 374.0008$$

D.

$$\underline{\hspace{1cm}} + 5 + 300 + 80 + 0.07 = 385.27 \quad 30 + \underline{\hspace{1cm}} + 2 + 0.09 = 32.19$$

E.

$$9000 + 3 + 0.008 + \underline{\hspace{1cm}} = 9003.508 \quad 400 + 7 + 0.6 + \underline{\hspace{1cm}} = 457.6$$

6. Compute the following expressions with no calculator.

A. $102 + 30 =$

B. $3020 + 905 =$

C. $40081020 + 7900305 =$

D. $0.1003 + 0.02407 =$

E. $0.7020301 + 0.01050908 =$

F. $30 + 0.02 + 20 + 0.04 + 0.01 + 40 + 0.03 + 10 =$

G. $90700308002003.00690892010045 + 8024090370920.380070006012$
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