Lesson 4-6 M

Lesson 4

1 Students in the third grade line up and form a square array to perform gymnastics. There are 44 people in the outermost layer. There are _____ students on each side of the outermost layer, and there are _____ students in total in this array.

Answer 1:12

2:144

Solution Each side has $44 \div 4 + 1 = 12$, or $(44 + 4) \div 4 = 12$ students, and there are $12 \times 12 = 144$ students in total.

2 Teachers in the third grade are arranged in a square array. There are 8 teachers on each side of the outermost layer.

(1) In total, there are _____ teachers in the outermost layer.

(2) Counting from the outside to the inside, there are _____ teachers on each side of the 2^{nd} layer, and in total, there are _____ teachers in the 2^{nd} layer.

Answer (1) 28

(2) 1:6

2:20

Solution (1) $(8 - 1) \times 4 = 28$, or $8 \times 4 - 4 = 28$ teachers.

(2) There are 2 fewer teachers on each side of the 2^{nd} layer than teachers on each side of the outermost layer, $8 - 2 = 6$ teachers. In total, there are $(6 - 1) \times 4 = 20$, or $6 \times 4 - 4 = 20$ teachers in the 2^{nd} layer.

3 Students from Think Primary School are arranged in a square array with equal row spacing and column spacing on the playground. The outermost layer of the array is full of boys, and the adjacent inner layer is full of girls, then boys, then girls and so on until the innermost layer is reached. If there are 76 more boys than girls in total, what is the total number of students in the array?

A. 1296 B. 1444 C. 1600 D. 1764

Answer B

Solution Group two adjacent layers of boys and girls together. There are 8 more boys than girls in a group like that. Then, there are 9 ($76 \div 8 = 9R4$) groups with 4 remaining boys that form the innermost layer of the square array. Therefore, there are $2 \times 9 + 1 = 19$ layers, and the innermost layer has 4 students in total with 2 students on each side. The number of students on each side increases by 2, and each side of the outermost layer has $2 + 2 \times 18 = 38$ students, which means there are $38 \times 38 = 1444$ students in total.

Lesson 5

1 Calculate (write the answers in form of mixed number):

(1) $\frac{1}{15} + 1\frac{7}{15} =$ _____ .

(2) $10\frac{4}{5} - 2\frac{2}{5} =$ _____ .

(3) $2\frac{3}{16}+3\frac{13}{16}=$ _____ .

(4) $12\frac{9}{17}-3\frac{9}{17}=$ _____ .

Answer (1) $1\frac{8}{15}$

(2) $8\frac{2}{5}$

(3) 6

(4) 9

Solution (1) N/A

(2) N/A

(3) N/A

(4) N/A

2 Calculate:

$\frac{1}{3}+2\frac{2}{3}=$ _____ $\frac{1}{10}+\frac{7}{10}=$ _____ $\frac{4}{7}+\frac{5}{7}=$ _____

$\frac{5}{9}+\frac{4}{9}=$ _____ $4\frac{3}{8}+\frac{1}{8}=$ _____ $6\frac{1}{11}+3\frac{9}{11}=$ _____

Answer 1:3

2:$\frac{4}{5}$

3:$1\frac{2}{7}$

4:1

5:$4\frac{1}{2}$

6:$9\frac{10}{11}$

Solution N/A

3 Calculate:

$\frac{2}{3}+\frac{1}{5}=$_____ $\frac{1}{4}+\frac{3}{7}=$_____

$\frac{4}{9}+\frac{2}{18}=$_____ $\frac{5}{6}+\frac{7}{18}=$_____

$\frac{3}{4}+\frac{5}{6}=$_____ $\frac{1}{6}+\frac{3}{8}=$_____

Answer 1:$\frac{13}{15}$

2:$\frac{19}{28}$

3:$\frac{5}{9}$

4:$1\frac{2}{9}$

5:$\frac{19}{12}$

6:$\frac{13}{24}$

Solution N/A

Lesson 6

1 Calculate:

$4\frac{7}{9}+1\frac{5}{9}=$_____ $3\frac{20}{21}+5\frac{20}{21}=$_____

$5\frac{1}{7}-1\frac{4}{7}=$_____ $9\frac{3}{5}-2\frac{4}{5}=$_____

$10\frac{1}{8}-9\frac{5}{8}=$_____ $100\frac{2}{99}-99\frac{98}{99}=$_____

Answer 1:$6\frac{1}{3}$

2:$9\frac{19}{21}$

3:$3\frac{4}{7}$

4:$6\frac{4}{5}$

5:$\frac{1}{2}$

6: $\frac{1}{33}$

Solution (1) $4\frac{7}{9}+1\frac{5}{9}=(1+4)+(\frac{7}{9}+\frac{5}{9})=5+1+\frac{3}{9}=6\frac{1}{3}$

(3) $5\frac{1}{7}-1\frac{4}{7}=(5-1-1)+(\frac{1}{7}+\frac{7}{7}-\frac{4}{7})=3\frac{4}{7}$

(5) $10\frac{1}{8}-9\frac{5}{8}=(10-1-9)+(\frac{1}{8}+\frac{8}{8}-\frac{5}{8})=\frac{1}{2}$

2 Calculate (write the answers in form of proper fraction or mixed number):

(1) $11\frac{2}{15}-2\frac{4}{15}=$ _____ .

(2) $9\frac{1}{9}-3\frac{4}{9}=$ _____ .

(3) $21\frac{8}{21}-19\frac{19}{21}=$ _____ .

(4) $6\frac{5}{18}-5\frac{7}{18}=$ _____ .

Answer (1) $8\frac{13}{15}$

(2) $5\frac{2}{3}$

(3) $1\frac{10}{21}$

(4) $\frac{8}{9}$

Solution (1) N/A

(2) N/A

(3) N/A

(4) N/A

3 Calculate:

(1) $\frac{7}{15}+\frac{4}{21}=$_____; $\frac{22}{45}-\frac{11}{60}=$_____.

(2) $4\frac{2}{5}+\frac{4}{7}=$_____; $63\frac{1}{18}-\frac{3}{10}=$_____.

(3) $\frac{49}{15}+415\frac{2}{3}=$_____; $91\frac{3}{8}-\frac{71}{3}=$_____.

Answer (1) $1:\frac{23}{35}$

$2:\frac{11}{36}$

(2) $1:4\frac{34}{35}$

$2:62\frac{34}{45}$

(3) $1:418\frac{14}{15}$

$2:67\frac{17}{24}$

Solution (1) $\frac{7}{15}+\frac{4}{21}=\frac{49}{105}+\frac{20}{105}=\frac{69}{105}=\frac{23}{35}$;

$\frac{22}{45}-\frac{11}{60}=\frac{88}{180}-\frac{33}{180}=\frac{55}{180}=\frac{11}{36}$.

(2) $4\frac{2}{5}+\frac{4}{7}=4+\frac{14}{35}+\frac{20}{35}=4\frac{34}{35}$;

$63\frac{1}{18}-\frac{3}{10}=62+\frac{1}{18}+1-\frac{3}{10}=62+\frac{1}{18}+\frac{7}{10}=62+\frac{5}{90}+\frac{63}{90}=62\frac{34}{45}$.

(3) $\frac{49}{15}+415\frac{2}{3}=415+\frac{49}{15}+\frac{10}{15}=418\frac{14}{15}$;

$91\frac{3}{8}-\frac{71}{3}=91\frac{3}{8}-23\frac{2}{3}=90-23+\frac{33}{24}-\frac{16}{24}=67\frac{17}{24}$.