

Application and Enrichment Solutions

Application and Enrichment 1G

Across

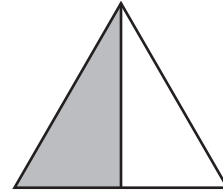
1. drama
4. estimation
6. build
8. story
9. math
10. drawing

Down

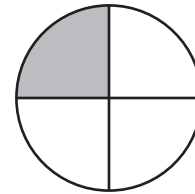
2. altogether
 3. real
 5. invent
 7. Key
-
1. done
 2. $6 - 4 = 2$ pies
 3. $\$25 + \$42 = \$67$
 4. Key words: "[fraction] of the cookies" indicates multiplying a fraction by a number (12 cookies). "Altogether" indicates addition.
 $\frac{1}{3} \times 12 = 4$ cookies
 $\frac{1}{4} \times 12 = 3$ cookies
 $4 + 3 = 7$ cookies
 5. Key words: "were left" indicates subtraction; "one half of them" indicates multiplying a fraction ($\frac{1}{2}$) by a number (the four remaining trees).
 $7 - 3 = 4$ trees
 $\frac{1}{2} \times 4 = 2$ apple trees
 6. Key words: "total" indicates addition; " $\frac{3}{4}$ of the total" indicates multiplying a fraction by a number; "have left" indicates subtraction.
 $\$20 + \$16 = \$36$
 $\frac{3}{4} \times \$36 = \27
 $\$36 - \$27 = \$9$

Application and Enrichment 2G

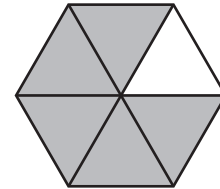
1. Colored parts should match the numerator of each fraction.



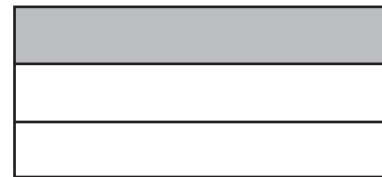
2.



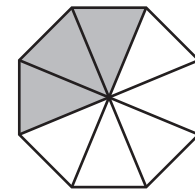
3.



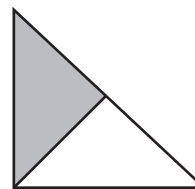
4.



5.



6.



7. 4 eggs are broken.
6 eggs are left.

8. 2 boxes will be donated.
6 boxes will be left.
9. 8 pieces of pie were eaten.
4 pieces were left.

Application and Enrichment 3G

1. two times
 $2 \times (6 + 4) = 2 \times 10 = 20$
2. eight times
 $8 \times (5 + 2) = 8 \times 7 = 56$
3. three times
 $3 \times (9 - 4) = 3 \times 5 = 15$
4. ten times
 $10 \times (1,268 - 345) = 10 \times 923 = 9,230$
5. $1/6 + 3/6 = 4/6$ of the seashells
 $4/6$ of 12
 $12 \div 6 = 2$
 $2 \times 4 = 8$ seashells
6. $1/4 + 1/4 = 2/4$ of the prizes
 $2/4$ of 8
 $8 \div 4 = 2$
 $2 \times 2 = 4$ prizes
7. $2/5 + 3/5 = 5/5$ of his problems
 $5/5$ of 20
 $20 \div 5 = 4$
 $4 \times 5 = 20$ problems
Steve has solved all of the problems.

Application and Enrichment 4G

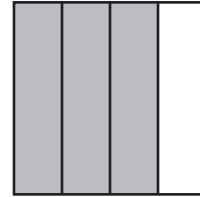
1.



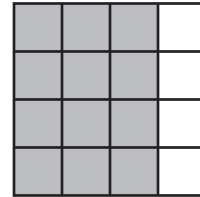
2. No, there is still the same amount of cake in the pan.
 $2/4$

3. Ian's share is $1/4$ of the whole cake.
Jamie's share is $1/4$ of the whole cake.

4.



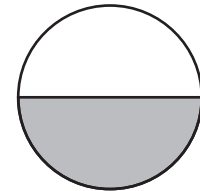
5.



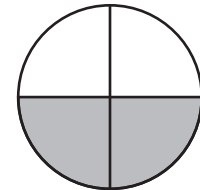
$12/16$ of the cake is in the pan.

6. $12/16$ cut into 4 parts = $3/16$

7.



8.



$2/4$ of the pie is left to be eaten.

9. Each of the boys will eat $1/4$ of the whole pie.
Each of the boys will eat $1/2$ of the leftover pie.
10. $4/5 = 2/5 + 2/5$
 $4/5 = 1/5 + 3/5$
 $4/5 = 1/5 + 1/5 + 1/5 + 1/5$
Since this is addition, the order of the fractions is not important.

11. $3/6 = 1/6 + 2/6$
 $3/6 = 1/6 + 1/6 + 1/6$
12. $7/8 = 1/8 + 6/8$
 $7/8 = 2/8 + 5/8$
 $7/8 = 3/8 + 4/8$
 $7/8 = 2/8 + 2/8 + 2/8 + 1/8$
 $7/8 = 1/8 + 1/8 + 1/8 + 1/8 + 1/8$
 $+ 1/8 + 1/8$
 There are other options as well.

Application and Enrichment 5G

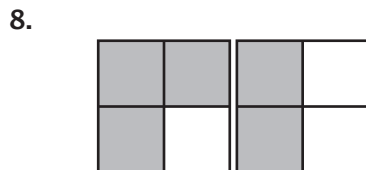
- Key words: another, in all
Add
- Key words: is left
Subtract
- Key words: difference
Subtract
- Key words: none
Add
- Key words: is left
Subtract



$$1/4 + 1/4 = 2/4 \text{ of a mile}$$



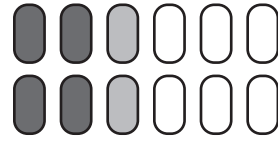
$$1 - 1/3 = 3/3 - 1/3 = 2/3 \text{ of the garden still needs to be planted.}$$



$$3/4 - 1/2 =$$

$$6/8 - 4/8 = 2/8 \text{ or } 1/4 \text{ lb}$$

9.



$$1/3 + 1/6 = 6/18 + 3/18 = 9/18 \text{ or}$$

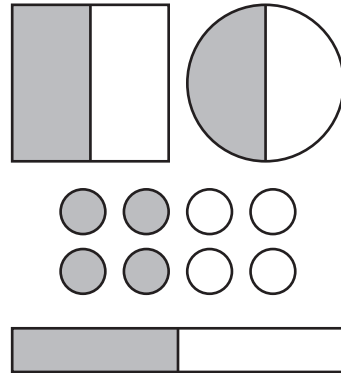
$$1/2 \text{ of the jelly beans}$$

10. $1/2$ of 12
 $12 \div 2 = 6$
 $1 \times 6 = 6$ jelly beans

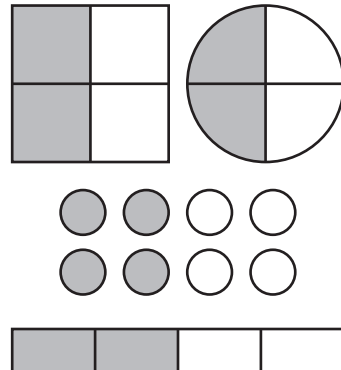
Counting the shaded or colored jelly beans in the drawing yields the same answer.

Application and Enrichment 6G

1.

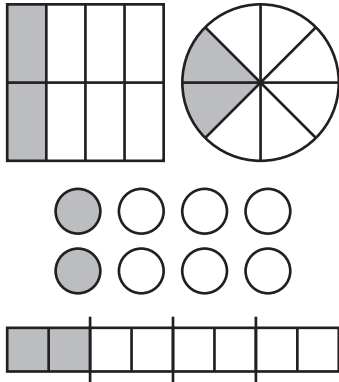


2.



$$2/4 = 1/2$$

3.



$$1/4 = 2/8$$

4. done
5. done
6. $3 \times (2) = 6$
7. Answers will vary.
8. $5 \times (6) = 30$
9. Answers will vary.
10. $(3) \times (6) = 18$
11. Answers will vary.

Application and Enrichment 7G

Answer should be "READ FOR MEANING."

1. addition
2. addition
3. subtraction
4. addition
5. subtraction
6. subtraction
7. addition
8. subtraction
9. addition
10. addition

Application and Enrichment 8G

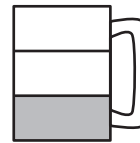
Note: Depending on the method the student uses to add the fractions, the final answer may differ. As long as the numerator and denominator are the same in the final answer (e.g., $4/4$, $8/8$, $64/64$), the answer is correct.

1. $1/4 + 1/4 + 1/8 + 1/8 + 1/4 =$
 $1/8 + 1/8 + 1/4 + 1/4 + 1/4 =$
 $2/8 + 3/4 =$
 $8/32 + 24/32 =$
 $32/32 = 1$
2. $1/4 + 1/8 + 1/8 + 1/2 =$
 $1/8 + 1/8 + 1/4 + 1/2 =$
 $2/8 + 1/4 + 1/2 =$
 $8/32 + 8/32 + 1/2 =$
 $16/32 + 1/2 =$
 $32/64 + 32/64 =$
 $64/64 = 1$
3. $1/4 + 1/2 + 1/8 + 1/8 =$
 $1/8 + 1/8 + 1/4 + 1/2 =$
 $2/8 + 1/4 + 1/2 =$
 $2/8 + 2/8 + 4/8 =$
 $8/8 = 1$

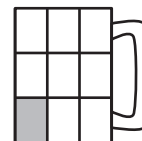
Note that, after rearranging the fractions, problem 3 was the same as problem 2. We used a different method to solve in problem 3. Since both methods produced answers equivalent to 1, both methods are correct and may be used with either problem.

Application and Enrichment 9G

1. What the recipe calls for:

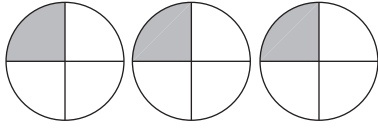


What Mary needs:



- $1/3 \times 1/3 = 1/9$ of a cup
2. $2 \times 1/3 = 2/3$ of a cup
3. Juncos divided into 4 groups of 3 each; 3 groups = 9 juncos;
 $3/4 \times 12 = 9$ juncos

4. $3/1 \times 1/4 = 3/4$ of a pizza



Application and Enrichment 10G

1. done
2. done
3. $1/7$ of what was left over;
what was left over = $7/8$
 $1/7 \times 7/8 = 7/56$ of a whole pie
4. $1/2$ of the days last month;
the days last month = 30
 $1/2 \times 30 = 15$ days
5. $2/3$ of what Paul did;
what Paul did = $1/5$
 $2/3 \times 1/5 = 2/15$ of the job
6. $6 \times 1/2 = 3$ miles

Application and Enrichment 11G

1. $3/1 \div 1/6 = 18/6 \div 1/6 = 18$ times. (Dividing a whole number by a unit fraction is the same as multiplying the whole number by the denominator of the fraction.)
2. $3/4 \times 1/2 = 3/8$ of a pizza
3. $1/2 + 1/4 = 4/8 + 2/8 = 6/8$ of the cookies
4. $1/3 \div 4 = 1/3 \div 12/3 = 1/12$ of a pie
5. $1/2 \div 1/4 = 2/4 \div 1/4 = 2$ people

Application and Enrichment 12G

1. definitely false ($3/7 < 1/2$)
 $1/2 + 2/5 = 5/10 + 4/10 = 9/10$
2. definitely false ($2/5 < 1/2$)
 $1/4 + 1/2 = 2/8 + 4/8 = 6/8$ or $3/4$
3. definitely false ($9/10 > 2/5$)
 $2/5 - 1/4 = 8/20 - 5/20 = 3/20$
4. could be true ($5/12 < 2/3$)
 $2/3 - 1/4 = 8/12 - 3/12 = 5/12$

5. $1/3 + 1/5 = 5/15 + 3/15 = 8/15$ makes sense; $8/15$ is greater than both numbers she started with.
6. $3/4 - 1/2 = 6/8 - 4/8 = 2/8 = 1/4$ makes sense; $1/4$ is shorter than the distance he started with.
7. $1/2 \times 2/3 = 2/6$
Drawing C
8. $1/3 + 1/2 = 2/6 + 3/6 = 5/6$
Drawing D
9. $1/3 \div 1/2 = 2/6 \div 3/6 = 2 \div 3 = 2/3$
Drawing A
10. $1/2 - 1/3 = 3/6 - 2/6 = 1/6$
Drawing B

Application and Enrichment 13G

1. 66: $2 \times 3 \times 11$
84: $2 \times 2 \times 3 \times 7$
GCF = $2 \times 3 = 6$
 $66 \div 6 = 11$; 6 is a factor of 66.
 $84 \div 6 = 14$; 6 is a factor of 84.
2. 62: 2×31
93: 3×31
GCF = 31 (31 is the only prime common to both.)
 $62 \div 31 = 2$; 31 is a factor of 62.
 $93 \div 31 = 3$; 31 is a factor of 93.
3. $40 = 2 \times 2 \times 2 \times 5$
 $90 = 2 \times 3 \times 3 \times 5$
GCF = $2 \times 5 = 10$
 $40 \div 10 = 4$; 10 is a factor of 40.
 $90 \div 10 = 9$; 10 is a factor of 90.
4. GCF = 5
 $5(3 + 2) = 5(5) = 25$
 $5(3) + 5(2) = 15 + 10 = 25$
5. GCF = 6
 $6(3 + 4) = 6(7) = 42$
 $6(3) + 6(4) = 18 + 24 = 42$
6. GCF = 8
 $8(4 + 7) = 8(11) = 88$
 $8(4) + 8(7) = 32 + 56 = 88$

7. $GCF = 9$
 $9(5 + 9) = 9(14) = 126$
 $9(5) + 9(9) = 45 + 81 = 126$
8. $GCF = 3$
 $3(2 + 13) = 3(15) = 45$
 $3(2) + 3(13) = 6 + 39 = 45$

Application and Enrichment 14G

1. $2 \times 3 = 6$ sq in
2. $3 \times 2 = 6$; $3 \times 6 = 18$ sq in
3. $18 \div 6 = 3$
4. five
5. ten
6. $24 \times 10 = 240$ sq in
7. $1/2 \times 24 = 12$; $1/2 \times 240 = 120$ sq in
8. $120 \div 240 = 120/240 = 1/2$
9. one sixth
10. one fourth

Application and Enrichment 15G

1. $[(8) + 1] \times 5 =$
 $[9] \times 5 = 45$
2. $[(10) \times 9] + 2 =$
 $[90] + 2 = 92$
3. $2 \times [(7) - 5]$
 $2 \times [2] = 4$
4. $7 + 4[9 - (6)] =$
 $7 + 4[3] =$
 $7 + 12 = 19$
5. $[(24 \div 4) + 2] \times 6 =$
 $[(6) + 2] \times 6 =$
 $[8] \times 6 = 48$
6. $[(15 - 8) \times 2] + 5 =$
 $[(7) \times 2] + 5 =$
 $[14] + 5 = 19$
7. $[(3 + 3) \times 5] \div 10 =$
 $[(6) \times 5] \div 10 =$
 $[30] \div 10 = 3$
8. $2/10 = 20/100$
 $20/100 + 70/100 = 90/100$
9. $4/10 = 40/100$
 $40/100 - 1/100 = 39/100$

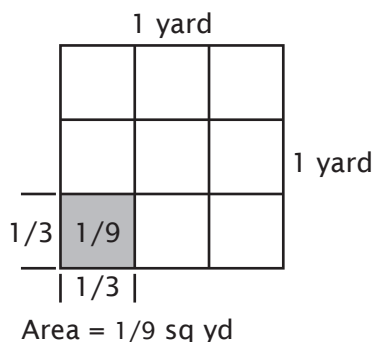
10. $2/10 = 20/100$
 $10/100 + 20/100 = 30/100$

Application and Enrichment 16G

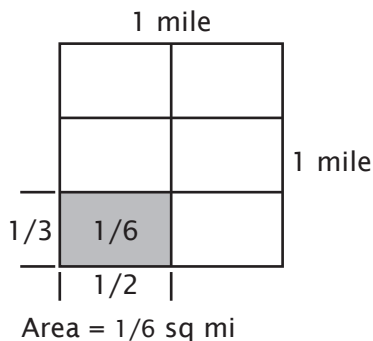
1. quadrilateral, trapezoid
2. quadrilateral, parallelogram, rhombus
3. quadrilateral, parallelogram, rectangle
4. quadrilateral, parallelogram, rectangle, rhombus, square
5. 4
6. rhombus, square, rectangle; parallelograms

Application and Enrichment 17G

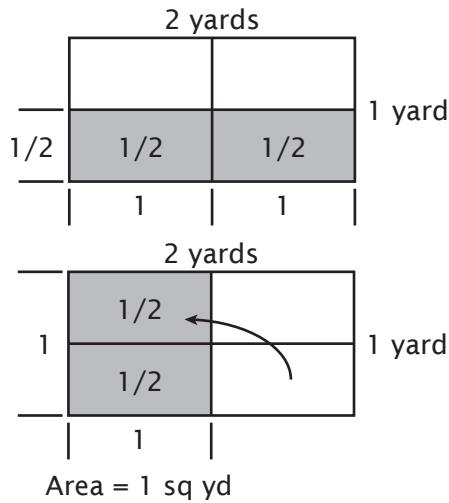
1.



2.

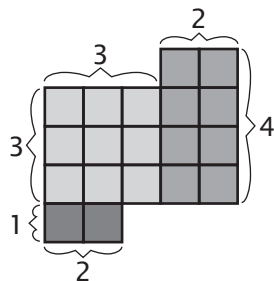


3.



Application and Enrichment 18G

1. Main part: $3 \times 4 \times 6 = 72$ cu yd
Tower: $1 \times 1 \times 3 = 3$ cu yd
Total: $72 + 3 = 75$ cu yd
2. How the student arrives at the answer to this problem may vary. The floor plan must be divided into rectangular sections to compute the area, and there are multiple correct ways to do so. One example is shown. The final answer should always be the same.



$$(1 \times 2) + (3 \times 3) + (2 \times 4) = 2 + 9 + 8 = 19 \text{ sq yd}$$

Counting the squares yields the same answer.

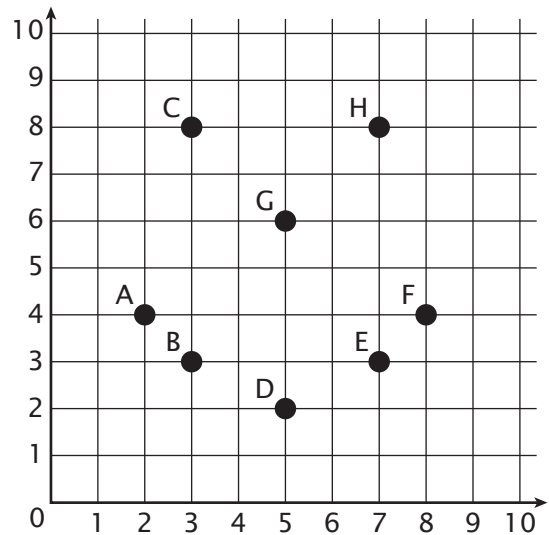
Base $\times$ Height = Volume

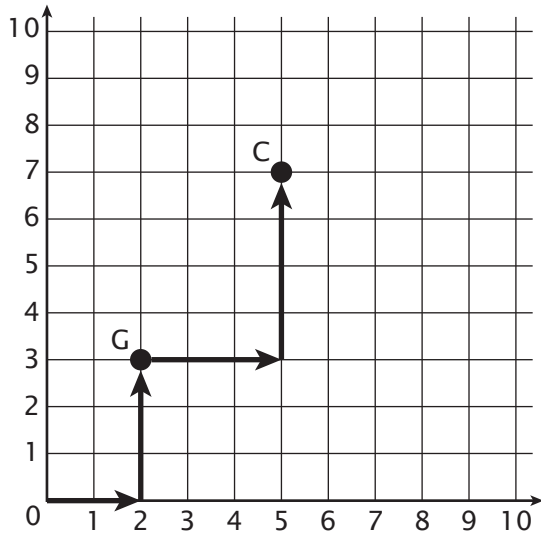
$$19 \times 5 = 95 \text{ cu yd}$$

Application and Enrichment 19G

1. 16 leaves
2. $5\frac{1}{2} - 1\frac{1}{2} = 4$ in
Counting yields the same answer.
3. $1\frac{1}{2} + 4\frac{1}{2} = 6$ in
4. $11\frac{1}{2} \times 3/1 = 33/2 = 16\frac{1}{2}$ in
5. Graph should show one dot over the 1 mark, two dots over the 2 $\frac{1}{2}$ mark, and three dots over the 4 mark.
6. 4 occurred most; 1 occurred least
7. $4 + 4 + 4 = 12$ cups
 $2\frac{1}{2} + 2\frac{1}{2} = 5$ cups
 $12 + 5 + 1 = 18$ cups
8. $18 \div 6 = 3$ cups average

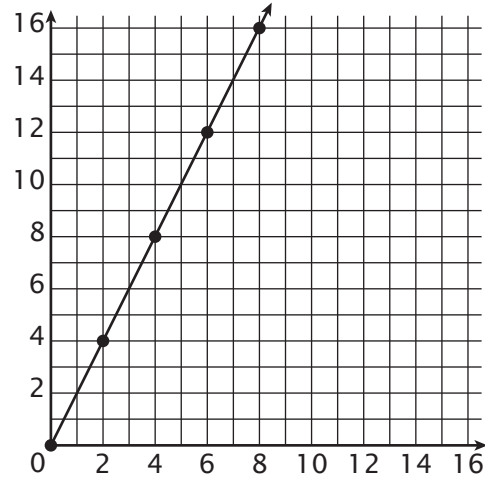
Application and Enrichment 20G



Application and Enrichment 21G

1. (2, 3)
2. (5, 7); 12 blocks
3. The new route will also be twelve blocks as long, as Bill always walks in a direction that brings him closer to home. We are assuming that he stays on the sidewalks and does not cut across any blocks diagonally.
4. 2, 4, 6, 8
5. 0, 4, 8, 12, 16
6. (0, 0), (2, 4), (4, 8), (6, 12), (8, 16)

7.



The y-axis value of each point is twice the x-axis value.

Application and Enrichment 22G

1. $\{[(36 \div 6) + 3] - 1\} \times 2 =$
 $\{[6 + 3] - 1\} \times 2 =$
 $\{9 - 1\} \times 2 =$
 $8 \times 2 = 16$
2. $\{[(17 - 9) \times 3] - 2\} \div 11 =$
 $\{[8 \times 3] - 2\} \div 11 =$
 $\{24 - 2\} \div 11 =$
 $22 \div 11 = 2$
3. $2 \times \{[8 + (4 \times 7)] \div 4\} =$
 $2 \times \{[8 + 28] \div 4\} =$
 $2 \times \{36 \div 4\} =$
 $2 \times 9 = 18$
4. $5 + \{[3(6 + 1)] - 4\} =$
 $5 + \{[3(7)] - 4\} =$
 $5 + \{[21] - 4\} =$
 $5 + \{17\} = 22$
- 5.

2	4	6	8	10	12	14	16
3	6	9	12	15	18	21	24

The student may find and describe patterns other than those given.

6.

1	2	3	4	5	6	7	8
4	8	12	16	20	24	28	32

Each number in the bottom row is four times the number above it.

7.

1	2	4	7	11	16	22	29
0	1	3	6	10	15	21	28

Add a number one greater each time, starting with 1 in the top row and 0 in the bottom.

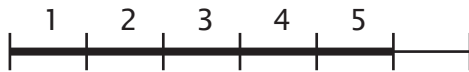
8.

3	6	9	12	15	18	21	24
24	21	18	15	12	9	6	3

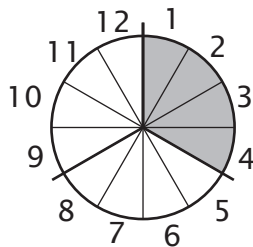
The top row skip counts by three. The bottom row subtracts three each time.

Application and Enrichment 23G

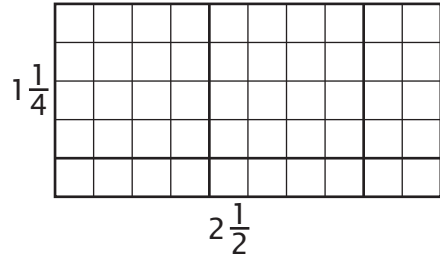
1. $5/6 \div 1/6 = 5 \div 1 = 5$



2. $1/3 \div 4 = 1/3 \times 1/4 = 1/12$ of a pizza



3. $3\frac{1}{8} \div 1\frac{1}{4} = 25/8 \div 5/4 = 25/8 \div 10/8 = 25 \div 10 = 2\frac{1}{2}$ ft



Adding the areas of the parts results in $3\frac{1}{8}$ sq ft.

4. $6 \text{ cups} \div 1/2 \text{ cups} = 6/1 \times 2/1 = 12$ times

1	3	5
2	4	6
7	9	11
8	10	12

Application and Enrichment 24G

- 4 qt
- multiply
-

10	40
15	60
8	32
4	16
12	48

- Tuesday
 $40 + 60 + 32 + 16 + 48 = 196$ qt
- $\$18 \times 3 = \54
- 3 ft
- divide

8.

2	$\frac{2}{3}$
3	1
6	2
5	$1\frac{2}{3}$
1	$\frac{1}{3}$

9. $\frac{1}{3} = \frac{8}{24}$

$\frac{3}{8} = \frac{9}{24}$

$\frac{9}{24} > \frac{8}{24}$, so $\frac{3}{8} > \frac{1}{3}$

 $\frac{3}{8}$ of a yard will be enough.

10. $\frac{2}{3} = \frac{16}{24}$

$\frac{1}{2} = \frac{12}{24}$

$\frac{3}{8} = \frac{9}{24}$

$\frac{3}{4} = \frac{18}{24}$

Since $\frac{18}{24}$ is greater than $\frac{16}{24}$, Sarah needs to buy $\frac{3}{4}$ of a yard.**Application and Enrichment 25G**

1. counting: 15 sq ft

multiplying:

$6 \times 2\frac{1}{2} =$

$6 \times \frac{5}{2} = \frac{30}{2} = 15$ sq ft

2. $\frac{1}{2} \times 2\frac{1}{2} = \frac{1}{2} \times \frac{5}{2} =$

$\frac{5}{4} = 1\frac{1}{4}$ pizzas

3. counting: $8\frac{3}{4}$ sq mi

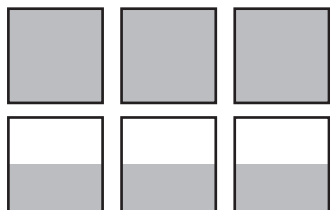
multiplying:

$2\frac{1}{2} \times 3\frac{1}{2} =$

$\frac{5}{2} \times \frac{7}{2} =$

$\frac{35}{4} = 8\frac{3}{4}$ sq mi

4.



counting:

$3 + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} = 4\frac{1}{2}$ cups

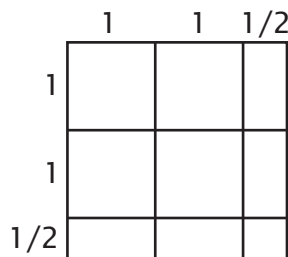
multiplying:

$1\frac{1}{2} \times 3 =$

$\frac{3}{2} \times 3 =$

$\frac{9}{2} = 4\frac{1}{2}$ cups

5.



counting:

$4 + 4/2 + 1/4 = 6\frac{1}{4}$ sq yd

multiplying:

$2\frac{1}{2} \times 2\frac{1}{2} =$

$\frac{5}{2} \times \frac{5}{2} =$

$\frac{25}{4} = 6\frac{1}{4}$ sq yd

Application and Enrichment 26G

1. drawing and counting: 14 pieces

dividing:

$3\frac{1}{2} \div \frac{1}{4} =$

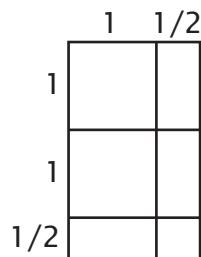
$\frac{7}{2} \times \frac{4}{1} = \frac{28}{2} = 14$ pieces

2. $2\frac{3}{4} \div \frac{1}{8} =$

$11/4 \div \frac{1}{8} =$

$11/4 \times 8/1 = \frac{88}{4} = 22$ people

3.



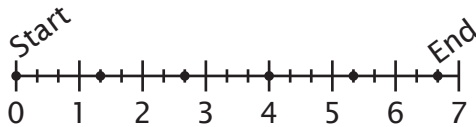
$3\frac{3}{4}$ sq ft $\div 1\frac{1}{2}$ ft =

$\frac{15}{4} \div \frac{3}{2} =$

$\frac{15}{4} \times \frac{2}{3} =$

$\frac{30}{12} = 2\frac{1}{2}$ ft

4. 4 times
 $5 \div 1\frac{1}{4} =$
 $5 \div 5/4 =$
 $5 \times 4/5 = 20/5 = 4$ times
5. Each gets 2 whole cookies. The remaining $1\frac{1}{2}$ cookies can be evenly divided: $1/2$ per person.
 $7\frac{1}{2} \div 3 =$
 $15/2 \times 1/3 = 15/6 =$
 $2\frac{1}{2}$ cookies
6. $6\frac{2}{3} \div 1\frac{1}{3} =$
 $20/3 \div 4/3 =$
 $20 \div 4 = 5$ sections.
 Since there is also a bench at the beginning of the trail, there will be 6 benches. The drawing helps make this clearer.



Application and Enrichment 27G

1	2	3	4	5	6	7	8	9	10
2	4	6	8	10	12	14	16	18	20

- 5 squares
- 10 triangles
- skip counting by ones and twos
- 20 squares, 40 triangles
-

1	2	3	4	5	6	7	8	9	10
3	6	9	12	15	18	21	24	27	30

- 15 flies missed
- 9 flies caught
-

1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10
2	4	6	8	10	12	14	16	18	20

- 12 saved cookies
- $7 + 14 = 21$ cookies taken out
- 20 cookies eaten right away

Application and Enrichment 28G

1.

$$\begin{array}{r}
 4\frac{1}{2} \\
 \times 5\frac{1}{3} \\
 \hline
 20\frac{5}{2} \\
 20\frac{23}{6} + \frac{1}{6}
 \end{array}
 \quad \text{or} \quad
 \begin{array}{l}
 4\frac{1}{2} \times 5\frac{1}{3} = \\
 \frac{9}{2} \times \frac{16}{3} = \\
 \frac{144}{6} = 24
 \end{array}$$

$$20\frac{24}{6} = 24$$

2.

$$\begin{array}{r}
 3\frac{1}{7} \\
 \times 2\frac{1}{2} \\
 \hline
 6\frac{2}{7} \\
 6\frac{28}{14} + \frac{1}{14}
 \end{array}
 \quad \text{or} \quad
 \begin{array}{l}
 3\frac{1}{7} \times 2\frac{1}{2} = \\
 \frac{22}{7} \times \frac{5}{2} = \\
 \frac{110}{14} = \\
 7\frac{12}{14} = 7\frac{6}{7}
 \end{array}$$

$$6\frac{26}{14} = 7\frac{12}{14} = 7\frac{6}{7}$$

Application and Enrichment 29G

- $4.2 > 3.8$
- $0.90 = 0.9$
- $2.31 > 1.31$
- $0.57 < 0.75$
- $0.123 < 0.238$
- $0.8 > 0.12$
- $1.62 > 0.83$

Application and Enrichment 30G

