EoT3-Coverae-Grade 6-General
Mathematics
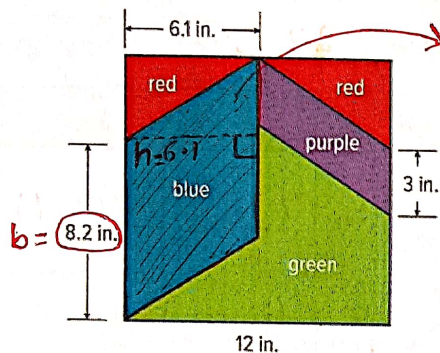
مدرسة
Al Sadara
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School

Part-1

M8L1 – Area of Parallelograms	Exercise (1,2, 5,6)	Page:441

1. The pattern shows the dimensions of a quilting square that Nakida will use to make a quilt. How much blue fabric will she need to make one square? **(Example 1)**
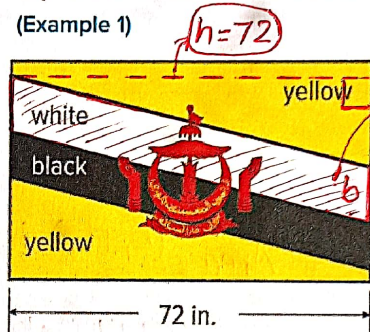
red · red
h=6·1 · purple
blue · 3 in.
b = 8.2 in. · green
6.1 in. · 12 in.

$b = 8.2 \quad h = 6.1$

$Area = b \times h$
$= 8.2 \times 6.1$
$= 50.02 \ in^2$

2. A group of students is painting the flag of Brunei for a geography project. Joseph is responsible for painting only the background colors of the flag. How many square inches will he cover with white paint? **(Example 1)**
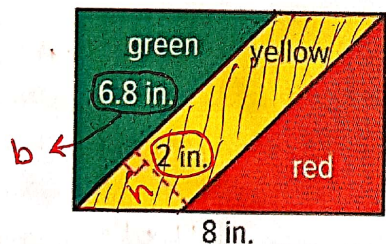
h=72
yellow
white
black
yellow
$8\frac{1}{2}$ in
7 in.
72 in.

$b = 8\frac{1}{2} \quad h = 72$

$Area = b \times h$
$= 8\frac{1}{2} \times 72$
$= \frac{17}{2} \times 72^{36}$
$= 612 \ in^2$

5. Find the area of the yellow striped region of the flag of the Republic of the Congo.

green · yellow
6.8 in.
b
2 in. · red
8 in.

5.2 in.

$b = 6.8 \quad h = 2$
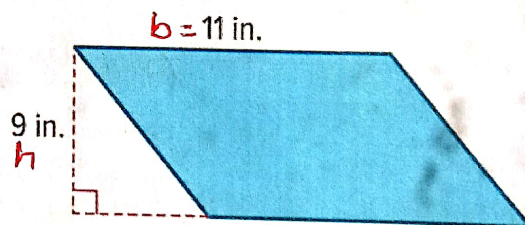
$Area = b \times h$
$= 6.8 \times 2$
$= 13.6 \ in^2$

6. Open Response What is the area of the parallelogram?
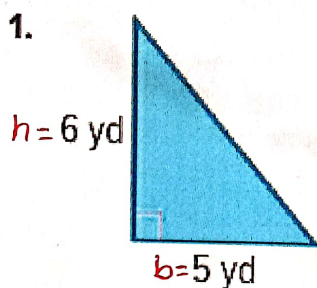
$Area = b \times h = 11 \times 9 = 99 \ in^2$

b = 11 in.
9 in.
h

M8L2 – Area of Triangles	Exercise (1,2, 3,4)	Page:449

Find the area of each triangle. (Example 1)

1.

h = 6 yd
b=5 yd

$b = 5 \quad h = 6$

$Area = \frac{b \times h}{2} = \frac{5 \times 6}{2} = \frac{30 \div 2}{2 \div 2}$
$= 15 \ yd^2$

2.

8 ft
h
b = 8 ft
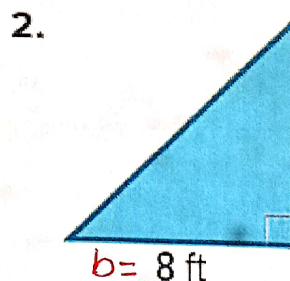
$b = 8 \quad h = 8$

$Area = \frac{b \times h}{2}$
$= \frac{8 \times 8}{2}$
$= \frac{64 \div 2}{2 \div 2}$
$= 32 \ ft^2$

3. Tameeka is in charge of designing a school pennant for spirit week. What is the area of the pennant? **(Example 2)**

$b = 3\frac{1}{2}$ ft

$6\frac{1}{2}$ ft $= h$

CLASS OF 2020

TIGERS
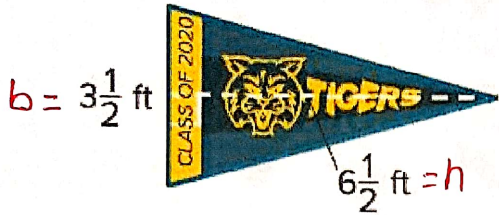
$Area = \frac{b \times h}{2} = \frac{1}{2} \times 3\frac{1}{2} \times 6\frac{1}{2}$

$= \frac{1}{2} \times \frac{7}{2} \times \frac{13}{2} = \frac{91}{8} = \boxed{11\frac{3}{8} \, ft^2}$

4. Norma has an A-frame cabin. The back is shown below. If the total area of the windows and doors is 3.5 square yards, how many square yards of paint will she need to cover the back of the cabin? **(Example 2)**
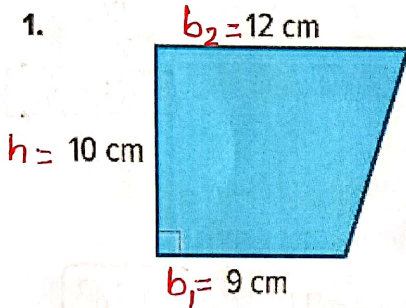
$h = 5$ yd

8 yd

$b =$
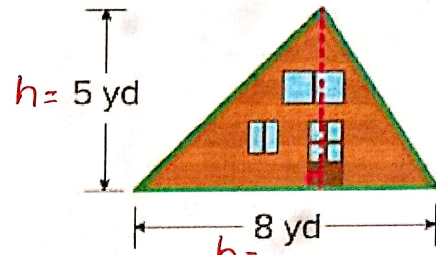
$Area \; of \; the \; cabin = \frac{b \times h}{2} = \frac{8 \times 5}{2} = 20 \, yd^2$

$Required \; area = 20 - 3.5$

$= \boxed{16.5 \, yd^2}$

M8L3 – Area of Trapezoids	Exercise (1,2, 3,4,5,6,7,8)	Page:461

Decompose each trapezoid to find its area. (Example 1)

1.

$b_2 = 12$ cm

$h = 10$ cm

$b_1 = 9$ cm

$Area = \frac{(b_1 + b_2) \times h}{2}$

$= \frac{(9+12) \times 10}{2}$

$= \frac{21 \times 10}{2}$

$= \frac{210}{2} = \boxed{105 \, cm^2}$

2.   2 ft   7 ft   2 ft

b_2

$h = 7$ ft

$b_1 = 7$ ft
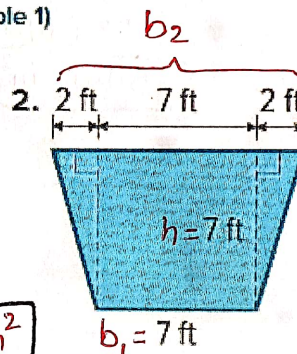
$b_1 = 7 \quad b_2 = 2+7+2 = 11$

$h = 7$

$Area = \frac{(b_1 + b_2) \times h}{2}$

$= \frac{(7+11) \times 7}{2}$

$= \frac{18 \times 7}{2} = \frac{126 \div 2}{2 \div 2} = \boxed{63 \, ft^2}$

Find the area of each trapezoid. (Example 2)

3.

$b_2 = 7$ in.

$h = 6$ in.

$b_1 = 5$ in.
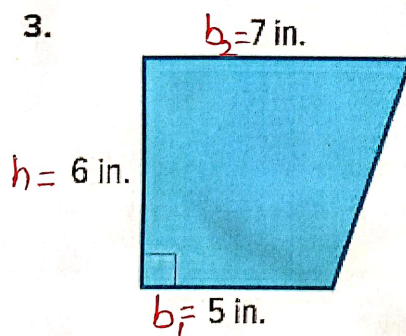
$Area = \frac{(b_1 + b_2) \times h}{2}$

$= \frac{(5+7) \times 6}{2}$

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

$= \frac{72 \div 2}{2 \div 2} = \boxed{36 \, in^2}$

4.

$b_2 = 4$ cm

$h = 12$ cm

$b_1 = 7$ cm
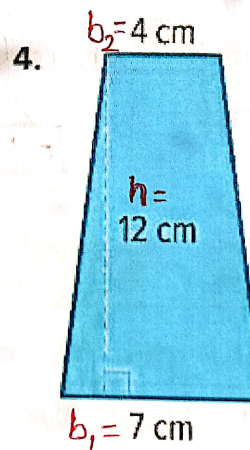
$Area = \frac{(b_1 + b_2) \times h}{2}$

$= \frac{(7+4) \times 12}{2}$

$= \frac{11 \times 12}{2}$

$= \frac{132 \div 2}{2 \div 2} = \boxed{6.6 \, cm^2}$

5. The shape of Arkansas resembles a trapezoid. What is the approximate area of Arkansas? **(Example 3)**

$Area = \frac{(b_1 + b_2) \times h}{2}$

$= \frac{(300+475) \times 400}{2}$

$= \frac{775 \times 400}{2}$

$= \frac{310000 \div 2}{2 \div 2}$

$= \boxed{155000 \, Km^2}$

b_2

475 km

Arkansas ★

400 km h

300 km

b_1

6. The top of the desk shown is in the shape of a trapezoid. What is the area of the top of the desk? **(Example 4)**

$Area = \frac{(b_1 + b_2) \times h}{2}$

$= \frac{(18+36) \times 24}{2}$

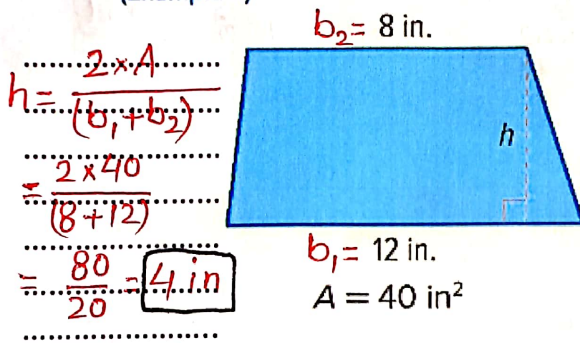$= \frac{54 \times 24}{2}$

$= \frac{1296 \div 2}{2 \div 2}$
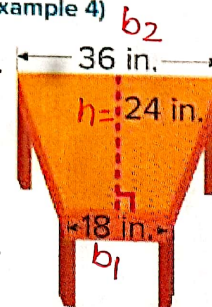
$= \boxed{648 \, in^2}$

b_2

36 in.

$h = 24$ in.

18 in.

b_1

7. Find the missing dimension of the trapezoid. (Example 5)

$b_2 = 8$ in.

$h = \dfrac{2 \times A}{(b_1 + b_2)}$

$= \dfrac{2 \times 40}{(8+12)}$

$= \dfrac{80}{20} = \boxed{4 \text{ in}}$

$b_1 = 12$ in.

$A = 40$ in²

8. **Open Response** Ciro made a sign in the shape of a trapezoid. What was the area of Ciro's sign?

$\boxed{4 \cdot 5 \, ft^2}$

$b_2 = 1.5$ ft

2 ft $= h$

$b_1 = 3$ ft
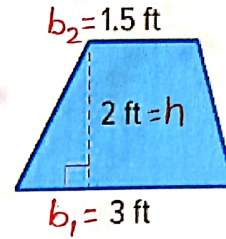
$Area = \dfrac{(b_1 + b_2) \times h}{2}$

$= \dfrac{(3 + 1 \cdot 5) \times 2}{2}$

$= \dfrac{4 \cdot 5 \times 2}{2}$

$= \dfrac{9 \div 2}{2 \div 2} = \boxed{4 \cdot 5 \, ft^2}$

M9L1 – Volume of Rectangular Prisms	Exercise (1,2, 6)	Page:493

1. Geneva's younger brother has a toy box that is shaped like a rectangular prism with the dimensions shown. What is the volume of the toy box? (Example 1)
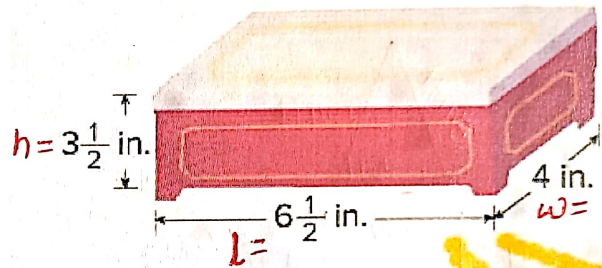

$1\frac{1}{2}$ ft $= h$

$w = 4$ ft

$l = 2\frac{1}{2}$ ft
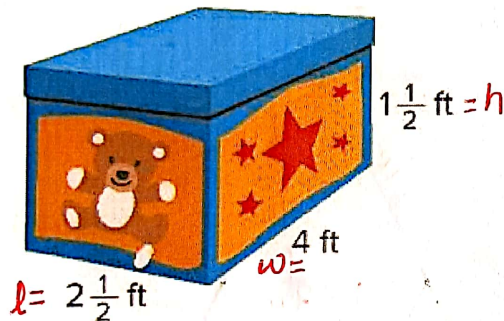
$Volume = l \times w \times h$

$= 2\frac{1}{2} \times 4 \times 1\frac{1}{2} = \dfrac{5}{2} \times 4 \times \dfrac{3}{2}$

$= \dfrac{60 \div 4}{4 \div 4} = \boxed{15 \, ft^3}$

2. Roy made a jewelry box in the shape of a rectangular prism with the dimensions shown. What is the volume of the jewelry box? (Example 1)

$h = 3\frac{1}{2}$ in.

$6\frac{1}{2}$ in.

$l =$

4 in.

$w =$

$Volume = l \times w \times h$

$= 6\frac{1}{2} \times 4 \times 3\frac{1}{2}$

$= \dfrac{13}{2} \times 4 \times \dfrac{7}{2} = \boxed{91 \, in^3}$

6. **Open Response** A rectangular prism has a length of 8 inches, a width of $7\frac{1}{2}$ inches, and a height of $6\frac{1}{4}$ inches. What is the volume of the prism?

$l = 8 \quad w = 7\frac{1}{2} \quad h = 6\frac{1}{4}$

$Volume = l \times w \times h$

$= 8 \times 7\frac{1}{2} \times 6\frac{1}{4}$

$= 8 \times \dfrac{15}{2} \times \dfrac{25}{4} = 15 \times 25 = \boxed{375 \, in^3}$

M9L1 – Volume of Rectangular Prisms	Exercise (3,4, 5)	Page:493

3. The rectangular prism shown has a <u>volume</u> of 52 cubic meters. What is the width of the prism? (Example 2)

$l = 6.5$ m

2 m $= h$

w
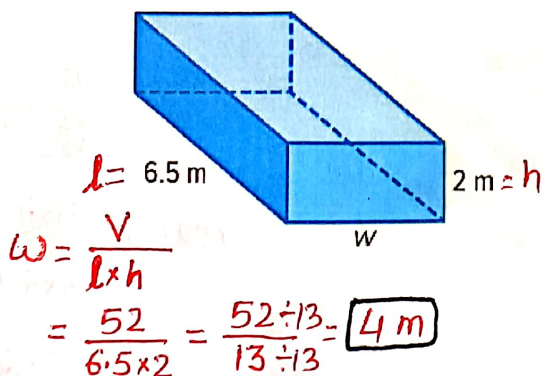
$w = \dfrac{V}{l \times h}$

$= \dfrac{52}{6 \cdot 5 \times 2} = \dfrac{52 \div 13}{13 \div 13} = \boxed{4 \text{ m}}$

4. The rectangular prism shown has a <u>volume</u> of 115 cubic yards. What is the length of the prism? (Example 2)

$2\frac{1}{2}$ yd $= w$

$5\frac{3}{4}$ yd $= h$

ℓ
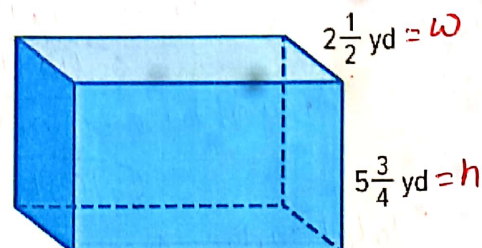
$V = l \times w \times h$

$115 = l \times 2\frac{1}{2} \times 5\frac{3}{4}$

$115 = l \times \dfrac{5}{2} \times \dfrac{23}{4} \Rightarrow$

$\dfrac{115}{1} \lessgtr \dfrac{l \times 115}{8} \Rightarrow 115 \times 8 = l \times 115$

$\Rightarrow \boxed{l = 8 \text{ yd}}$

5. Raphael drives a standard-sized dump truck with a rectangular prism shaped bed. The volume of the bed of the truck is 720 cubic feet. If the length of the bed is 15 feet and the width is 8 feet, what is the height of the bed of the dump truck?

$$V = 720, \quad l = 15, \quad w = 8, \quad h = ?$$

$$h = \frac{V}{l \times w} = \frac{720}{15 \times 8} = \frac{72\cancel{0}}{12\cancel{0}} = \boxed{6 \, ft}$$

1. Draw and label a net to represent the square pyramid. **(Example 1)**

2. Draw and label a net to represent the triangular pyramid. **(Example 2)**
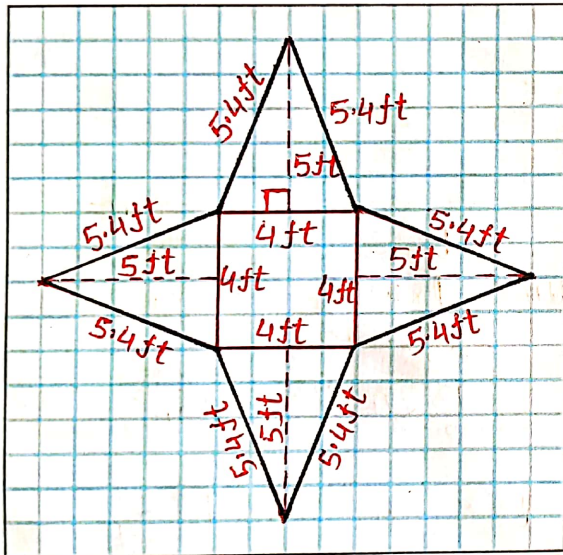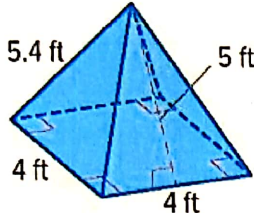
3. Use the net to find the surface area of the pyramid. **(Example 3)**

$$\text{Area } (A_1) = \frac{b \times h}{2} = \frac{4 \times 5}{2} = \frac{20}{2} = 10 \, ft^2$$

Area of lateral (Triangular) faces $= 4 \times 10$ $= \boxed{40 \, ft^2}$

Area of base $= 4 \times 4$ $= \boxed{16 \, ft^2}$

∴ Total surface Area $= 40 + 16$ $= \boxed{56 \, ft^2}$
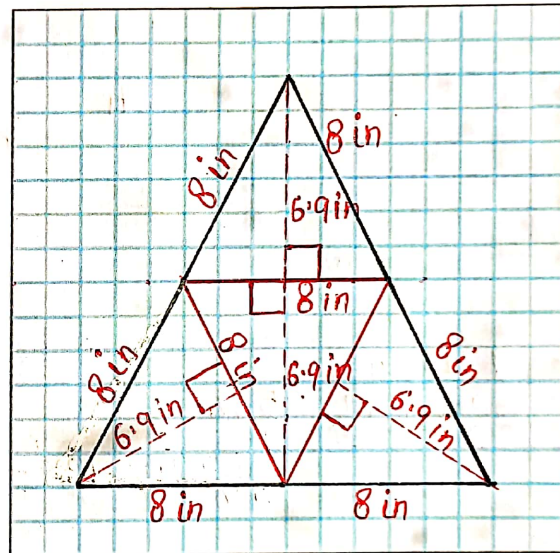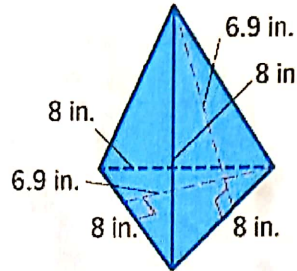
4. **Open Response** Use the net to find the surface area of the pyramid in square inches. **(Example 4)**

Total Surface Area $= 82.8 + 27.6 = \boxed{110.4 \, in^2}$

Area of base $= \frac{8 \times 6.9}{2}$ $= \boxed{27.6 \, in^2}$

$$\text{Area } (A_1) = \frac{b \times h}{2} = \frac{8 \times 6.9}{2} = 27.6 \, in^2$$

∴ Area of lateral faces $= 3 \times 27.6 = \boxed{82.8 \, in^2}$
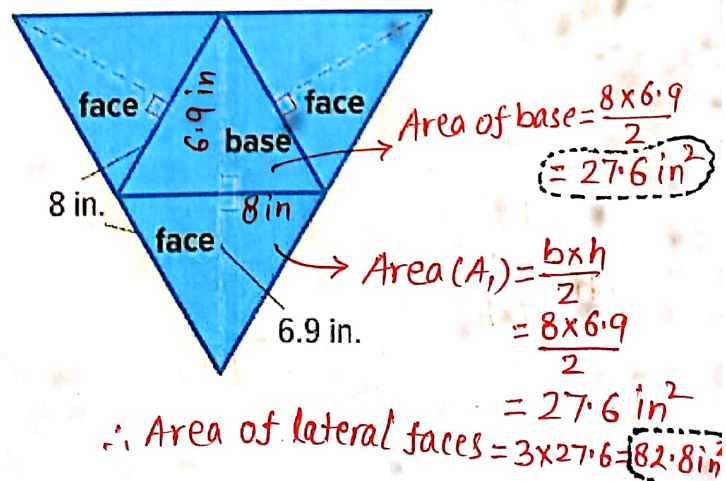
Determine whether or not each question is a statistical question.
(Example 1)

1. *How many continents are there?* not statistical Question

2. *How many continents has the average student visited?* statistical Question

3. *How many sporting events did the average student attend last year?* Statistical Question

4. *In what year was the first World Series?* not statistical Question

5. Suppose you want to determine the number of siblings each of your classmates have. You survey them using the question *How many siblings do you have?*. The responses were 1, 4, 2, 3, 0, 1, 0, 5, 1, 2, 2, 3, 0, 1, 2, 0, 1, 1, 6, and 2 siblings. Organize the data by completing the table and analyze the results. (Example 2)

Number of Siblings	Number of Responses
0–1	10
2–3	7
4–5	2
6 or more	1

Sample Answer: Half of the students have either 0 or 1 siblings

7. You survey your classmates using the question *How many sports do you play?*. The responses were 2, 2, 1, 3, 1, 2, 4, 1, 2, 1, 3, 2, 2, and 2 sports. Organize the data by completing the table and analyze the results. (Example 2)

sample answer: Half of the students play 2 sports.

Number of Sports	Number of Responses
1	4
2	7
3	2
4	1

M10L3 – Measures of Center	Exercise (1,2,3,4,5,6,7,8)	Page:559

1. The number of cans collected over the weekend by each sixth grade homeroom was 57, 59, 60, 58, 58, and 56 cans. Find the mean number of cans collected. (Example 1)

$$mean = \frac{Sum\ of\ values}{number\ of\ values} = \frac{57+59+60+58+58+56}{6}$$
$$= \frac{348 \div 6}{6 \div 6} = \boxed{58}$$

2. Grace and her friends are comparing the number of pets they own. They have 1, 2, 0, 5, 1, 1 and 4 pets. Find the mean number of pets owned. (Example 1)

$$mean = \frac{1+2+0+5+1+1+4}{7} = \frac{14 \div 7}{7 \div 7} = \boxed{2}$$
Mean

Part 1
Part2

3. The amount Lucy earned babysitting each month for the past five months was $225, $280, $240, $180, and $200. Suppose the mean for six months was $220. How much did Lucy earn babysitting during the sixth month? (Example 2)

$$mean = \frac{225+280+240+180+200+x}{6}$$
$$220 = \frac{1125+x}{6} \Rightarrow 220 \times 6 = 1125+x$$
$$\Rightarrow 1320 = 1125+x$$
$$\Rightarrow x = 1320-1125 = \boxed{195\$}$$

4. The average high temperature last week was 65 degrees Fahrenheit. The high temperatures for Sunday through Friday were 68, 70, 73, 45, 68, and 71 degrees Fahrenheit. What was the high temperature on Saturday? (Example 2)

Part 1
Part2

$$mean = \frac{68+70+73+45+68+71+x}{7}$$
$$65 = \frac{395+x}{7} \Rightarrow 65 \times 7 = 395+x$$
$$\Rightarrow 455 = 395+x$$
$$\Rightarrow x = 455-395 = \boxed{60\ F}$$

5. The table shows the results of a survey about the number of E-mails sent in one day. Find the median number of E-mails sent per day. (Example 3)

Part 1
Part2

Number of E-mails Sent Per Day						
20	24	22	27	21	27	20
27	22	23	20	22	24	26
23	26	27	22	27	20	25

Ascending Order (Small ⟶ Big)
20, 20, 20, 20, 21, 22, 22, 22, 22, 23
23, 24, 24, 25, 26, 26
27, 27, 27, 27, 27

Median = 24

6. The table shows the number of students in each group on a school field trip. Find the median size of a group. (Example 3)

Part 1
Part2

Number of Students in Each Group				
5	7	8	7	6
4	4	5	6	9
7	5	7	8	6
9	7	5	4	5

Ascending order (Small ⟶ Big)
4, 4, 4, 5, 5, 5, 5, 5, 6, 6, 6, 7, 7, 7, 7, 7,
8, 8, 9, 9

Median = $\frac{6+6}{2} = \frac{12}{2} = 6$

7. The table shows the number of points scored by a basketball team in each game last season. Find the median number of points scored. (Example 4)

Number of Points					
64	41	52	63	44	54
42	67	44	68	43	61

Ascending Order (Small ⟶ Big)
41, 42, 43, 44, 44, 52, 54, 61, 63, 64, 67, 68

Median = $\frac{52+54}{2}$ = 53

8. Open Response The number of points Seth has earned playing his favorite game is shown. Find the median of the data.

40, 28, 24, 37, 43, 26, 30, 36

33

Ascending order
24, 26, 28, 30, 36, 37, 40, 43

Median = $\frac{30+36}{2}$ = 33

M10L2 – Dot Plots and Histograms	Exercise (1,2,3,4)	Page:547

1. Chris surveyed the members of his tennis team by asking the question *In how many tennis tournaments have you played?*. The results are shown in the table. Construct a dot plot of the data and summarize the results. (Example 1)

Number of Tennis Tournaments					
0	2	1	4	0	1
1	0	3	2	6	0
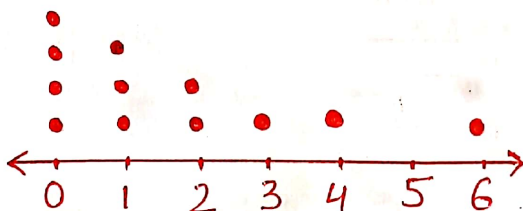
Sample answer:
Number of Players who played 2 or more tournaments are two less than those who played one or less tournaments.

2. The table shows the results of asking a group of teachers the question *How many students are in your homeroom?*. Construct a histogram to represent the data. (Example 2)

Homeroom Class Size						
17	26	20	23	19	23	22
22	24	19	20	21	20	23

number of students
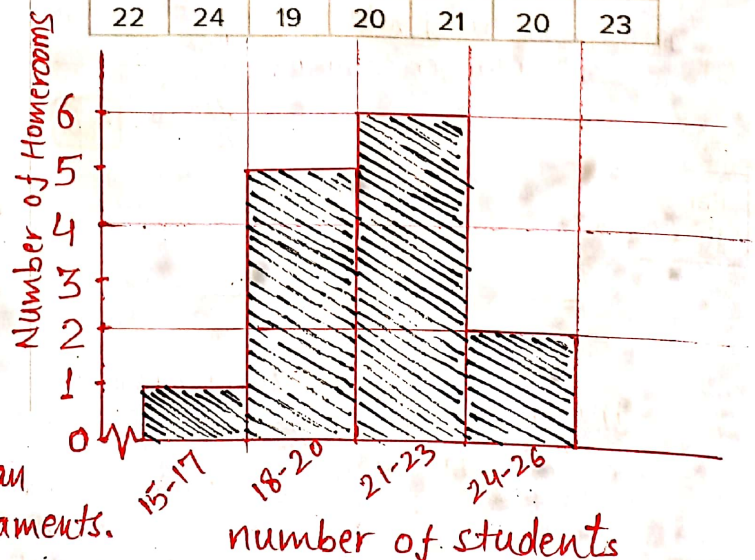
3. The table shows the results of asking a group of students the question *How many hours per month do you volunteer?*. Construct a histogram to represent the data. (Example 2)

Hours Spent Volunteering						
48	30	21	10	1	40	19
10	5	40	39	20	9	40
31	45	29	40	18	49	31
24	32	15	0	15	27	12

Number of Hours

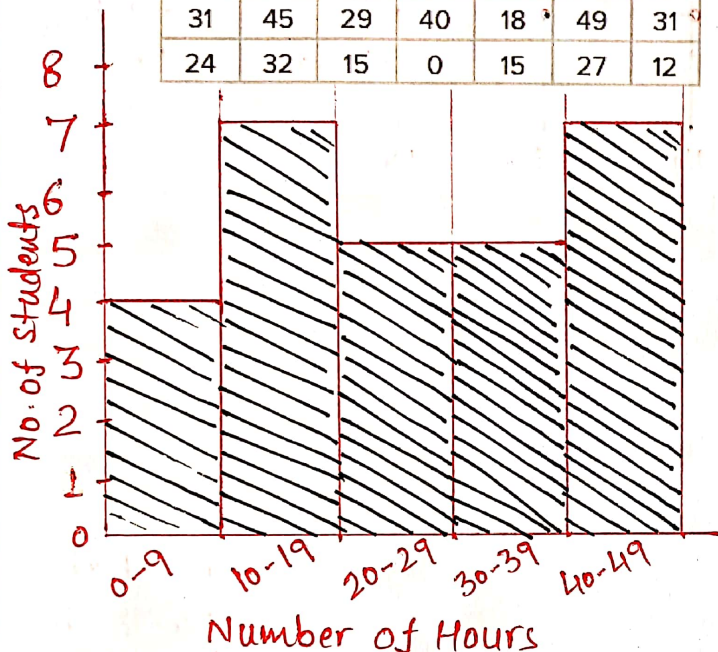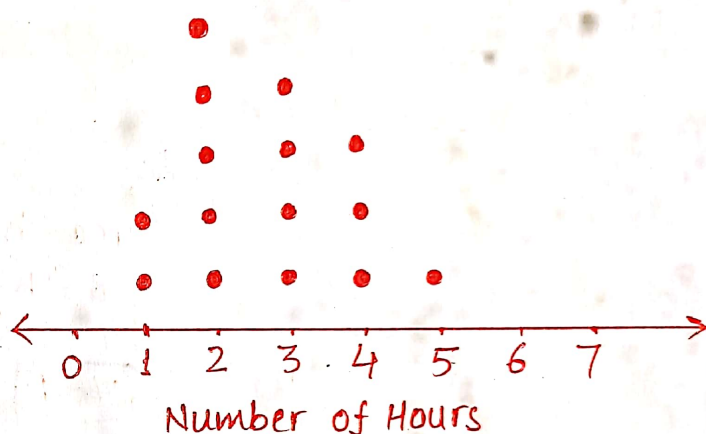**4. Open Response** Petra surveyed the members of her dance class by asking the question *How many hours outside of class do you usually practice dance each week?*. The results are shown in the table. Construct a dot plot of the data.

Number of Hours				
1	3	4	5	2
2	2	4	3	1
3	3	2	4	2

Number of Hours

M10L4 – Interquartile Range and Box Plots (Part 1 + Part 2)	Exercise (1,2,3,4)	Page:567

1. Cameron surveyed her friends about the number of apps they use. The responses were 15, 16, 18, 9, 18, 4, 19, 20, 17, and 36 apps. Use the range and interquartile range to describe how the data vary.
(Example 1) 4, 9, 15, 16, 17, 18, 18, 19, 20, 36

Range = maximum − minimum
= 36 − 4 = ⑫ 32

First Quartile (Q_1) = 15
Third Quartile (Q_3) = 19

InterQuartile Range $(IQR) = Q_3 - Q_1$
= 19 − 15
= ④

2. The table shows the number of hours different animals spend sleeping per day. Use the range and interquartile range to describe how the data vary. (Example 1)

Time Animals Spend Sleeping (h)					
12	20	16	11	4	2

Data: 2, 4, 11, 12, 16, 20

Range = 20 − 2 = ⑱

$Q_1 = 4$ $Q_3 = 16$

$IQR = Q_3 - Q_1 = 16 - 4 = ⑫$

3. The box plot shows the ages of vice presidents when they took office. Describe the distribution of the data. What does it tell you about the ages of vice presidents? (Example 2)

Ages of US Vice Presidents
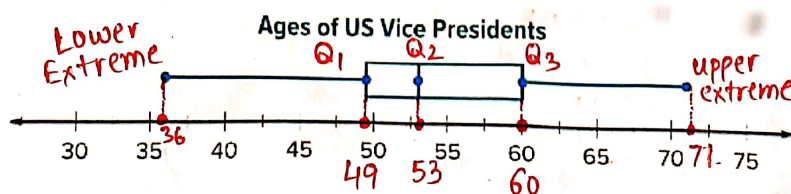
* (Approximate)
Range = 71 − 36 = ㉟
$Q_1 = 49$ $Q_3 = 60$
$IQR = Q_3 - Q_1 = 60 - 49$
= ⑪
Median (Q_2) = ㊺ 53

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4. The ages of children taking a hip-hop dance class are 10, 9, 9, 7, 12, 14, 14, 9, and 16 years old. Construct a box plot of the data. Then describe the distribution of the data. **(Example 3)**

7, 9, 9, 9, 10, 12, 14, 14, 16

Lower Extreme = 7
upper Extreme = 16
Range = 16 - 7 = 9
$Q_1 = 9$ $Q_3 = 14$
$IQR = Q_3 - Q_1 = 14 - 9 = 5$
Median $(Q_2) = 10$

First Quartile Q_1 Median Q_2 Third Quartile Q_3 upper extreme
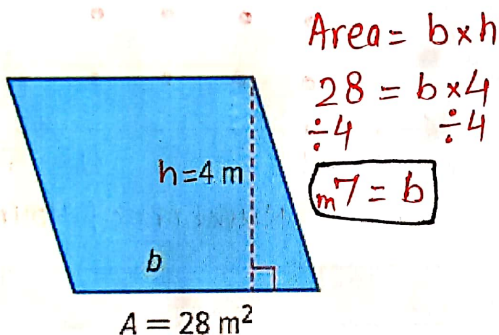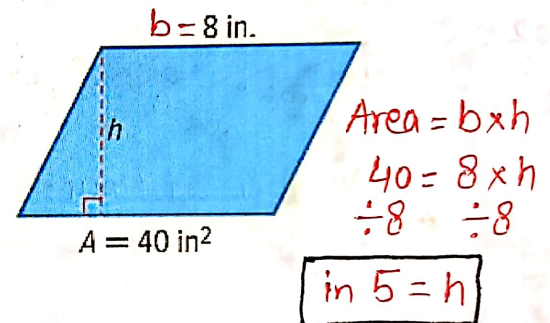
Lower Extreme

6 7 8 9 10 12 14 16 18
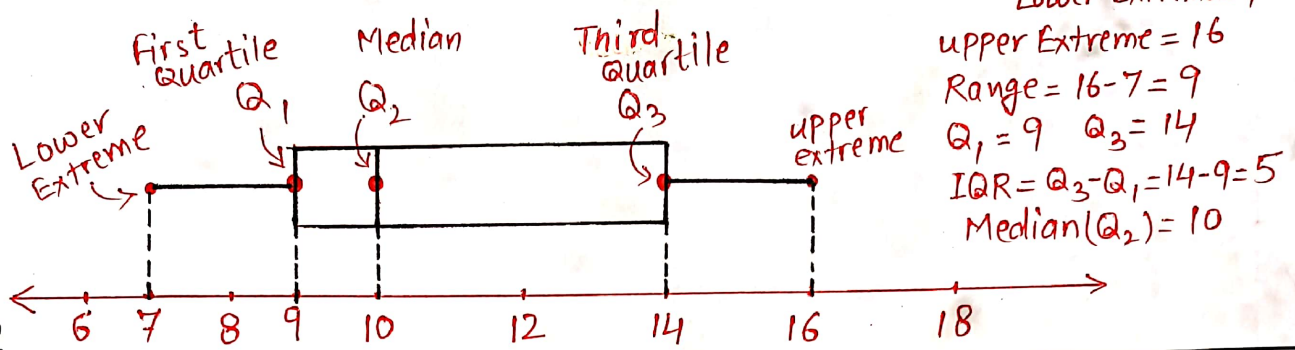
Part-2

M8L1 – Area of Parallelograms	Exercise (3,4)	Page:441

3. Find the underline missing dimension of the parallelogram. **(Example 2)**

h = 4 m
b
A = 28 m²

Area = b × h
28 = b × 4
÷4   ÷4
$7 = b$

4. Find the underline missing dimension of the parallelogram. **(Example 2)**

b = 8 in.
h
A = 40 in²

Area = b × h
40 = 8 × h
÷8   ÷8
5 = h in

M8L5 – Polygons on the Coordinate Plane	Exercise (1,2,3,4,5,6)	Page:477

1. Find the underline perimeter of the summer camp shown on the coordinate plane. **(Example 1)**

CD = 8 - 5 = 3

Swimming Pool (5, 14)   Volleyball Court (8, 14)
DE = 14 - 8 = 6
BC = 14 - 2 = 12
Girls Cabin (1, 8)   Campfire (5, 8)   EF = 5 - 1 = 4
FA = 8 - 2 = 6
A   B
Boys Cabin (1, 2)   Dining hall (8, 2)
AB = 8 - 1 = 7

Perimeter
= AB + BC + CD + DE + EF + FA
= 7 + 12 + 3 + 6 + 4 + 6
= 38 units
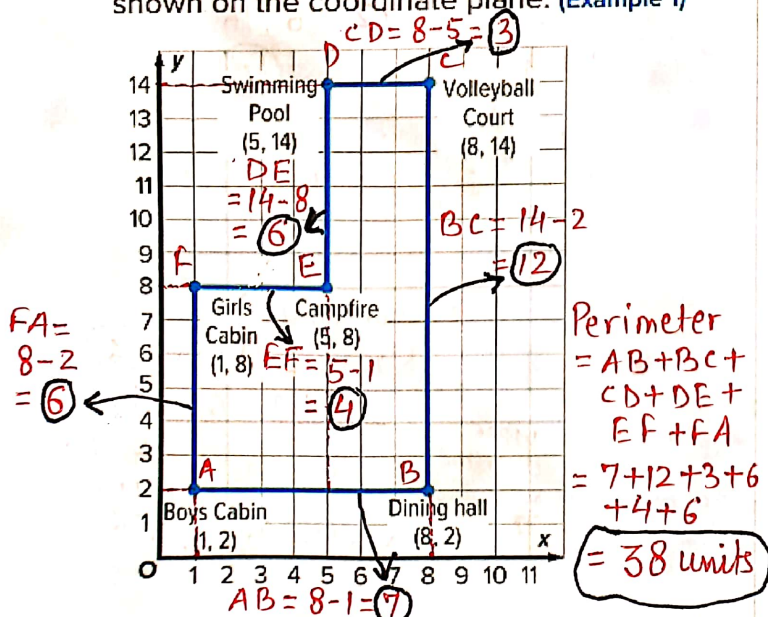
2. Find the underline perimeter of the science center shown on the coordinate plane. **(Example 1)**

EF = 10 - 5 = 5
Dinosaurs (10, 10)
Nature (5, 10)   FG = 10 - 6 = 4
GH = 5 - 0 = 5
DE = 10 - 6 = 4
CD = 12 - 10 = 2
Geology (12, 6)
G   D
Trains (0, 6)   Kids' Space (5, 6)   Space (10, 6)
HA = 6 - 1 = 5
BC = 6 - 1 = 5
Entrance (0, 1)   Planetarium (12, 1)   B
AB = 12 - 0 = 12

Perimeter = 12 + 5 + 2 + 4 + 5 + 4 + 5 + 5
= 42 units
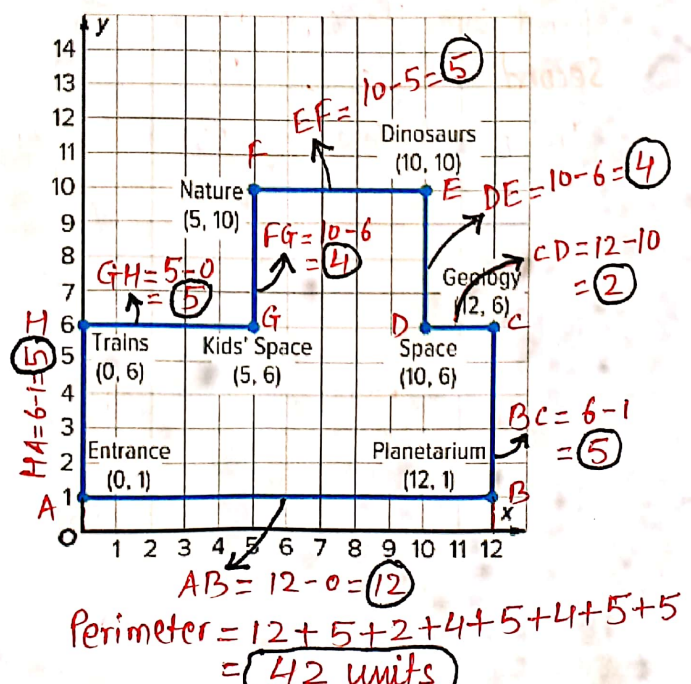
3. A rectangle has vertices $W(2, 7)$, $X(2, 0)$, $Y(6, 0)$, and $Z(6, 7)$. Use the coordinates to find the perimeter of the rectangle. **(Example 2)**

$W(2,7)$ $ZW = 6-2 = \boxed{4}$ $Z(6,7)$

$X(2,0)$ $XY = 6-2 = \boxed{4}$ $Y(6,0)$

$WX = 7-0 = \boxed{7}$

$YZ = 7-0 = \boxed{7}$

Perimeter
$= 4+7+4+7$
$= \boxed{22 \text{ units}}$

4. A rectangle has vertices $H(3, 0)$, $I(3, 7)$, $J(6, 7)$, and $K(6, 0)$. Use the coordinates to find the perimeter of the rectangle. **(Example 2)**

$I(3,7)$ $JI = 6-3 = \boxed{3}$ $J(6,7)$

$H(3,0)$ $HK = 6-3 = \boxed{3}$ $K(6,0)$

$HI = 7-0 = \boxed{7}$

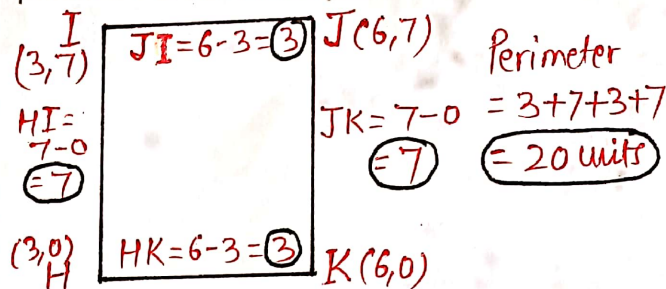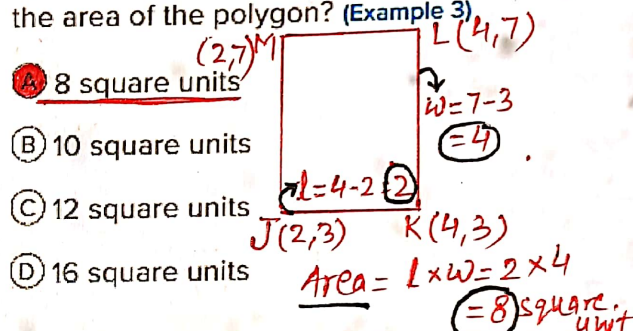$JK = 7-0 = \boxed{7}$

Perimeter
$= 3+7+3+7$
$= \boxed{20 \text{ units}}$
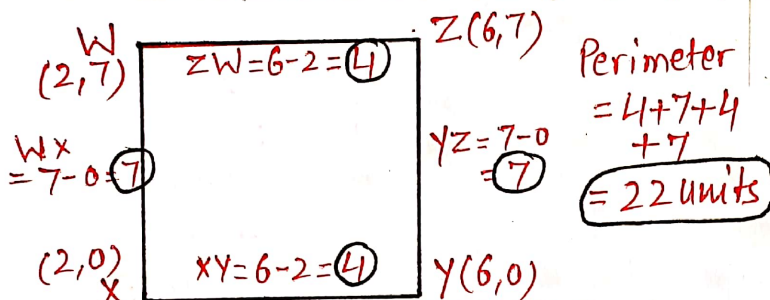
5. A polygon has vertices $A(3, 3)$, $B(3, 6)$, and $C(9, 3)$. Find the area of the polygon. **(Example 3)**

$B(3,6)$

$h = 6-3 = \boxed{3}$

$A(3,3)$ $b = 9-3 = \boxed{6}$ $C(9,3)$

$\text{Area} = \dfrac{b \times h}{2}$

$= \dfrac{6 \times 3}{2} = \dfrac{18 \div 2}{2 \div 2}$

$= \boxed{9 \text{ unit}^2}$

6. Multiple Choice A polygon has vertices $J(2, 3)$, $K(4, 3)$, $L(4, 7)$, and $M(2, 7)$. What is the area of the polygon? **(Example 3)**

Ⓐ 8 square units
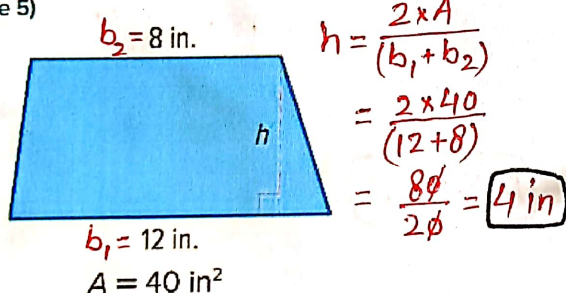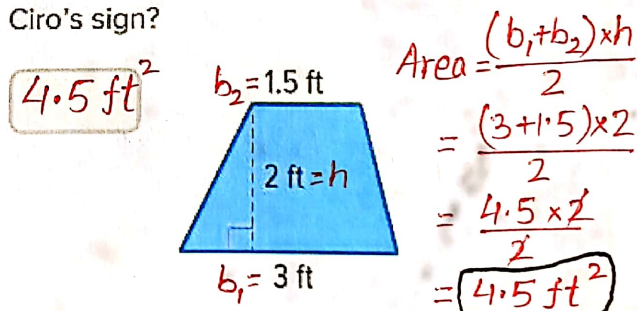
Ⓑ 10 square units

Ⓒ 12 square units

Ⓓ 16 square units

$M(2,7)$ $L(4,7)$

$w = 7-3 = \boxed{4}$

$l = 4-2 = \boxed{2}$

$J(2,3)$ $K(4,3)$

$\text{Area} = l \times w = 2 \times 4$
$= \boxed{8} \text{ square unit}$

M8L3 – Area of Trapezoids	Exercise **(7,8)**	Page:**461**

7. Find the missing dimension of the trapezoid. **(Example 5)**

$b_2 = 8$ in.

h

$b_1 = 12$ in.

$A = 40$ in²

$h = \dfrac{2 \times A}{(b_1 + b_2)}$

$= \dfrac{2 \times 40}{(12+8)}$

$= \dfrac{80}{20} = \boxed{4 \text{ in}}$

8. Open Response Ciro made a sign in the shape of a trapezoid. What was the area of Ciro's sign?

$\boxed{4.5 \text{ ft}^2}$

$b_2 = 1.5$ ft

$2 \text{ ft} = h$

$b_1 = 3$ ft

$\text{Area} = \dfrac{(b_1 + b_2) \times h}{2}$

$= \dfrac{(3+1.5) \times 2}{2}$

$= \dfrac{4.5 \times 2}{2}$

$= \boxed{4.5 \text{ ft}^2}$

M9L1 – Volume of Rectangular Prisms	Exercise **(5,6)**	Page:**493**

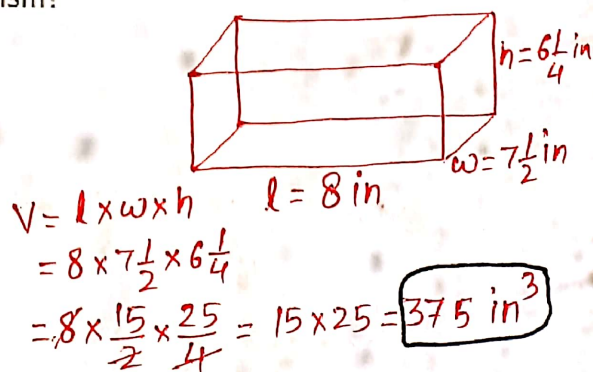**5.** Raphael drives a standard-sized dump truck with a rectangular prism shaped bed. The volume of the bed of the truck is 720 cubic feet. If the length of the bed is 15 feet and the width is 8 feet, what is the height of the bed of the dump truck?
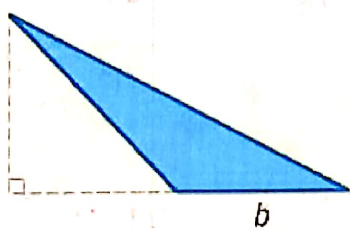
$V = l \times w \times h$

$720 = 15 \times 8 \times h$

$720 = 120 \times h$

$\dfrac{720}{120} = \dfrac{120}{120}$

$\text{ft } \boxed{6 = h}$

$V = 720$ cubic ft

$h = ?$

$w = 8$ ft

$l = 15$ ft

6. Open Response A rectangular prism has a length of 8 inches, a width of $7\frac{1}{2}$ inches, and a height of $6\frac{1}{4}$ inches. What is the volume of the prism?

$h = 6\frac{1}{4}$ in

$w = 7\frac{1}{2}$ in

$l = 8$ in

$V = l \times w \times h$

$= 8 \times 7\frac{1}{2} \times 6\frac{1}{4}$

$= 8 \times \dfrac{15}{2} \times \dfrac{25}{4} = 15 \times 25 = \boxed{375 \text{ in}^3}$
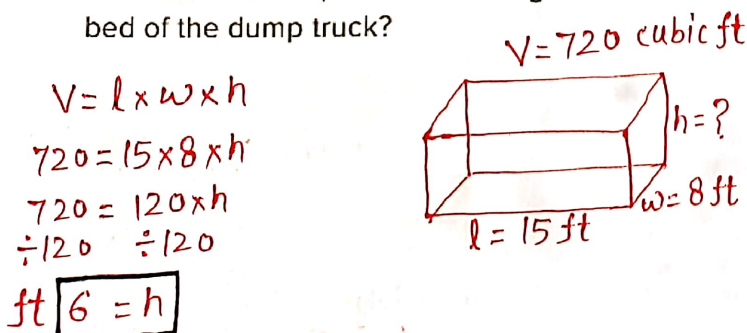
Find the missing dimension in each triangle. (Example 3)

5.

$h = 8.6$ km

b

$A = 38.7$ km²

$$b = \frac{2 \times A}{h} = \frac{2 \times 38.7}{8.6}$$

$$= \frac{77.4}{8.6} = \boxed{9 \, km.}$$

6.

h

$b = 6.75$ in.
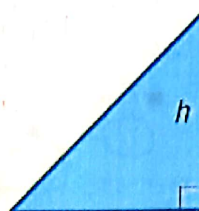
$A = 13.5$ in²

$$h = \frac{2 \times A}{b}$$

$$= \frac{2 \times 13.5}{6.75}$$

$$= \frac{27}{6.75} = \boxed{4 \, in}$$

7. The flag of Bosnia and Herzegovina is shown. What is the area of the triangle on the flag?

$b = 34 - 10 - 7$
$\uparrow = 17$

$\leftarrow 10$ cm$\rightarrow$ $\leftarrow 7$ cm$\rightarrow$

17 cm $= h$

34 cm

$$Area = \frac{b \times h}{2} = \frac{17 \times 17}{2} = \frac{289 \div 2}{2 \div 2} = \boxed{144.5 \, cm^2}$$

8. Open Response What is the area of the triangle?

7 m $= h$

$b = 10$ m
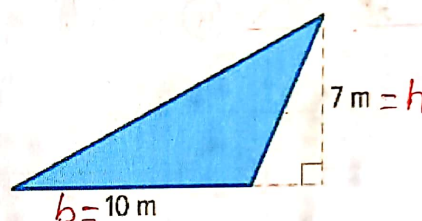
$$Area = \frac{b \times h}{2} = \frac{10 \times 7}{2}$$

$$= \frac{70 \div 2}{2 \div 2} = \boxed{35 \, m^2}$$

1. The table shows the number of sunny days in various U.S. cities in the last month. Find the mean absolute deviation. Explain what the mean absolute deviation represents. (Example 1)

Number of Sunny Days in Various Cities Last Month			
15	27	10	19
24	21	28	16

$$Mean = \frac{15 + 27 + 10 + 19 + 24 + 21 + 28 + 16}{8}$$

$$= \frac{160}{8} = \boxed{20}$$

Distance of each data value from the mean
$5, 7, 10, 1, 4, 1, 8, 4$

$$Mean \, absolute \, deviation = \frac{5 + 7 + 10 + 1 + 4 + 1 + 8 + 4}{8} = \frac{40}{8} = \boxed{5}$$

2. The table shows the number of flowers sold by each sixth grade homeroom. Find the mean absolute deviation. Explain what the mean absolute deviation represents. (Example 1)

Number of Flowers Sold				
75	89	80	145	85
60	92	104	90	100

$$Mean = \frac{75 + 89 + 80 + 145 + 85 + 60 + 92 + 104 + 90 + 100}{10}$$

$$= \frac{920}{10} = \boxed{92}$$

Distance from mean
$17, 3, 12, 53, 7, 32, 0, 12, 2, 8$

$$MAD = \frac{17 + 3 + 12 + 53 + 7 + 32 + 0 + 12 + 2 + 8}{10}$$

$$MAD = \frac{146}{10} = \boxed{14.6}$$

3. The table shows the number of wins of two school baseball teams over the last five years. Find the mean absolute deviation for each team. Then compare the variations. **(Example 2)**

Number of Wins Per Season					
Bears	7	10	13	12	9
Saints	12	15	10	14	13

Bears

$$Mean = \frac{7+10+13+12+9}{5} = \frac{51}{5} = \boxed{10.2}$$

Distance from the mean

3.2, 0.2, 2.8, 1.8, 1.2

$$MAD = \frac{3.2+0.2+2.8+1.8+1.2}{5}$$

$$MAD = \frac{9.2}{5} = \boxed{1.84}$$

Saints

$$Mean = \frac{12+15+10+14+13}{5} = \frac{64}{5} = \boxed{12.8}$$

Distance from the mean

0.8, 2.2, 2.8, 1.2, 0.2

$$MAD = \frac{0.8+2.2+2.8+1.2+0.2}{5} = \frac{7.2}{5} = \boxed{1.44}$$

** Mean Absolute deviation is greater for Bears than for saints. The data values for the saints are closer to the mean.

4. The table shows the number of canned goods each homeroom collected over seven days. Find the mean absolute deviation. Then compare the variations. Round to the nearest hundredth, if necessary. **(Example 2)**

Number of Canned Goods Collected							
Room 101	57	52	40	42	37	54	47
Room 102	51	17	42	40	46	74	31

(Room 101) Mean = 47   MAD = 6.29

(Rom 102) Mean = 43   MAD = 12

**MAD is greater for Room 102 than for Room 101. Data values are closure to the mean for Room 101

M10L4 – Interquartile Range and Box Plots	Exercise (5)	Page:567

5. Open Response The cost of tents on sale at a sporting goods store are $66, $72, $78, $69, $64, $70, $67, $72, and $66. Use the range and interquartile range to describe how the data vary.

✓ Median

Cost of tents (ascending order) → 64, 66, 66, 67, (69) 70, 72, 72, 78
                                    First half   Second half

Range = Max − Min = 78 − 64 = (14)

First Quartile (Q₁) = (66) {median of first half}

Median → Second Quartile (Q₂) = (69) {median}

Third Quartile (Q₃) = (72) {median of second half}

Inter Quartile Range = Q₃ − Q₁ = 72 − 66 = (6)

** Data vary by Range 14$ and the middle of the data values vary by 6$

M10L6 – Outliers	Exercise (1,2,3,4,5,6)	Page:581

1. Last week, Joakim spent 40, 25, 60, 30, 35, and 40 minutes practicing the piano. Identify any outliers in the data. **(Example 1)**

Data value 60 is significantly away from rest of the data values

Therefore outlier is = (60 minutes)

2. Last month, a basketball team scored 83, 84, 85, 87, 89, 88, 67, 79, and 81 points in their games. Identify any outliers in the data. **(Example 1)**

Data value 67 is significantly away from the rest of the data values

Therefore outlier is = (67 Points)

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3. Abrianna sold 20, 23, 18, 4, 17, 21, 15, and 56 boxes of cookies after different football games. Identify any outliers in the data. (Example 1)

Data values 4 and 56 are significantly away from rest of the data values.

Therefore outliers = (4) and (56)

4. Last week a certain pet store had 52, 72, 96, 21, 58, 40, and 75 paying customers. Identify any outliers in the data. (Example 1)

No outliers

5. The prices of trees that Sahana bought are $46, $39, $40, $45, $44, $68, and $51. Calculate the mean and median with and without the outlier. Round to the nearest tenth, if necessary. Choose the measure that best describes the center. (Example 2)

→ outlier

Mean with outlier = 47.6 (approx)
Mean without outlier = 44.2 (approx)
Median with outlier = 45
Median without outlier = 44.5

Median best describes the centre

6. The prices of backpacks are $37, $43, $41, $36, $44, and $70. Calculate the mean and median with and without the outlier. Round to the nearest tenth, if necessary. Choose the measure that best describes the center. (Example 2)

outlier

Mean with outlier = 45.2 (approx)
Mean without outlier = 40.2 (approx)
Median with outlier = 42
Median without outlier = 41

Median best describes the centre.

Part-3

M8L4 – Area of Regular Polygons	Exercise (1,2,3)	Page:467

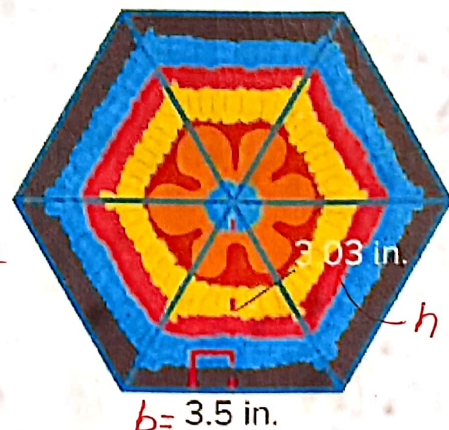**1.** Kendra knitted the coaster shown as a present for her grandmother. The coaster is shaped like a regular hexagon. Each side of the hexagon is 3.5 inches. Find the area of the coaster. Round to the nearest hundredth. (Example 1)

$$\text{Area of one triangle} = \frac{b \times h}{2} = \frac{3.5 \times 3.03}{2}$$

$$= \frac{10.61}{2} = 5.31 \text{ in}^2$$

Since there are 6 congruent triangles.

Hence Required Area = 6 × 5.31

$$= 31.86 \text{ in}^2 \text{ approx.}$$

3.03 in.
—h
b = 3.5 in.

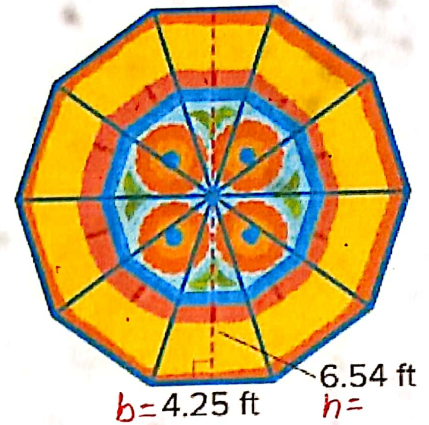**2.** Paul bought a new rug in the shape of a regular decagon. Each side of the decagon is 4.25 feet. Find the area of the rug. Round to the nearest hundredth. **(Example 1)**

Area of one triangle $= \dfrac{b \times h}{2} = \dfrac{4.25 \times 6.54}{2}$

$= \dfrac{27.795}{2} = 13.90 \text{ ft}^2$

Since there are 10 congruent triangles

Hence Required Area $= 10 \times 13.90$

$= \boxed{139.0 \text{ ft}^2 \text{ (approx)}}$
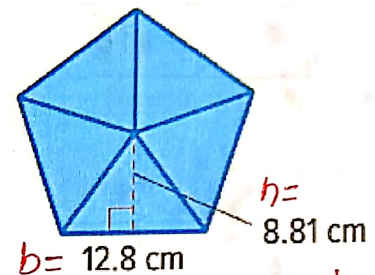
b = 4.25 ft   6.54 ft   h =

3. Open Response A regular pentagon is shown. What is the area of the pentagon?

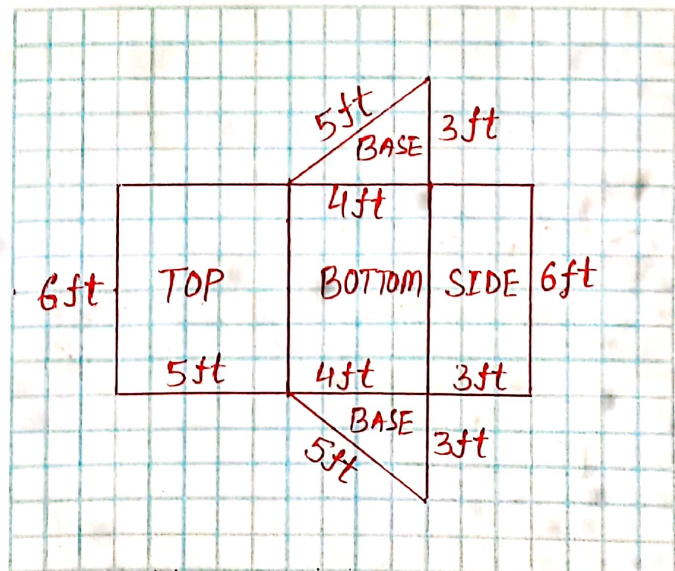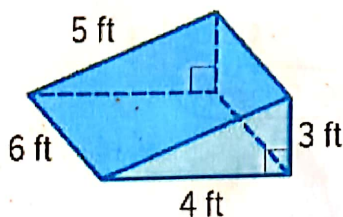$\boxed{281.9 \text{ cm}^2}$

Since there are 5 congruent triangles.

Hence Required Area $= 5 \times 56.38$
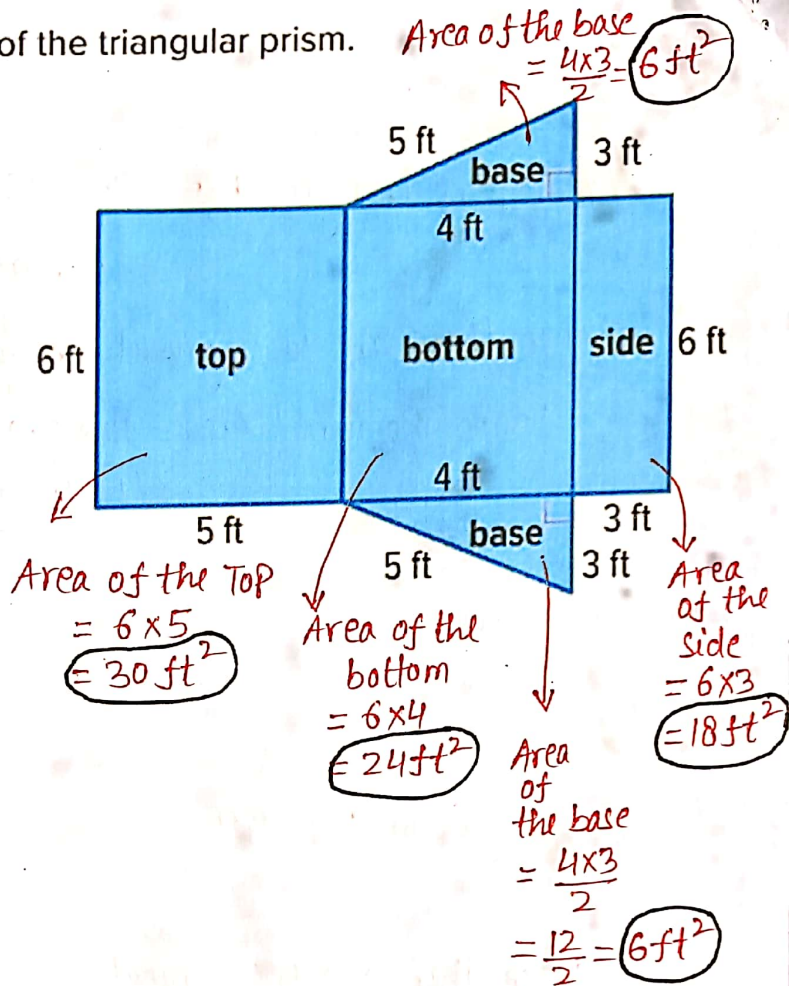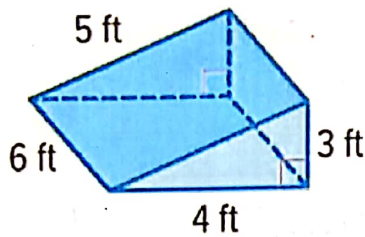
$\boxed{= 281.9 \text{ cm}^2}$

h = 8.81 cm

b = 12.8 cm

Area of one triangle $= \dfrac{b \times h}{2}$

$= \dfrac{12.8 \times 8.81}{2}$

$= \dfrac{112.768}{2}$

$= 56.38 \text{ cm}^2$

M9L3 – Surface Area of Triangular Prisms	Exercise (1,2,3)	Page:515

1. Draw and label a net to represent the triangular prism. Let each grid unit represent 1 foot. **(Example 1)**

5 ft

6 ft   3 ft

4 ft

5ft BASE 3ft
4ft
6ft TOP   BOTTOM SIDE 6ft
5ft   4ft   3ft
BASE 3ft
5ft

2. Use the net to find the surface area of the triangular prism. (Example 2)

Area of the base $= \frac{4\times3}{2} = 6\,ft^2$

5 ft
base
3 ft
4 ft
6 ft   top   bottom   side 6 ft
5 ft
4 ft
base   3 ft
5 ft   3 ft

Total surface

Area $= 30+24+6+18+6$

$= 84\ ft^2$

Area of the Top
$= 6\times5$
$= 30\ ft^2$

Area of the bottom
$= 6\times4$
$= 24\,ft^2$

Area of the base
$= \frac{4\times3}{2}$
$= \frac{12}{2} = 6\,ft^2$

Area of the Side
$= 6\times3$
$= 18\,ft^2$

3. Open Response Use the net to find the surface area of the triangular prism in square meters. (Example 3)

$811.2\ m^2$

13 m   15.6 m   13 m
10.4 m   15.6 m

15.6 m
15.6 m
13 m   13 m
10.4 m

Area $= \frac{15.6\times10.4}{2} = \frac{162.24}{2} = 81.12\ m^2$

Area $= 15.6\times15.6$
$= 243.36\,m^2$

Area $= 13\times15.6$
$= 202.8\ m^2$

Area $= 15.6\times13$
$= 202.8\,m^2$

Area $= \frac{15.6\times10.4}{2}$
$= \frac{162.24}{2}$
$= 81.12\ m^2$
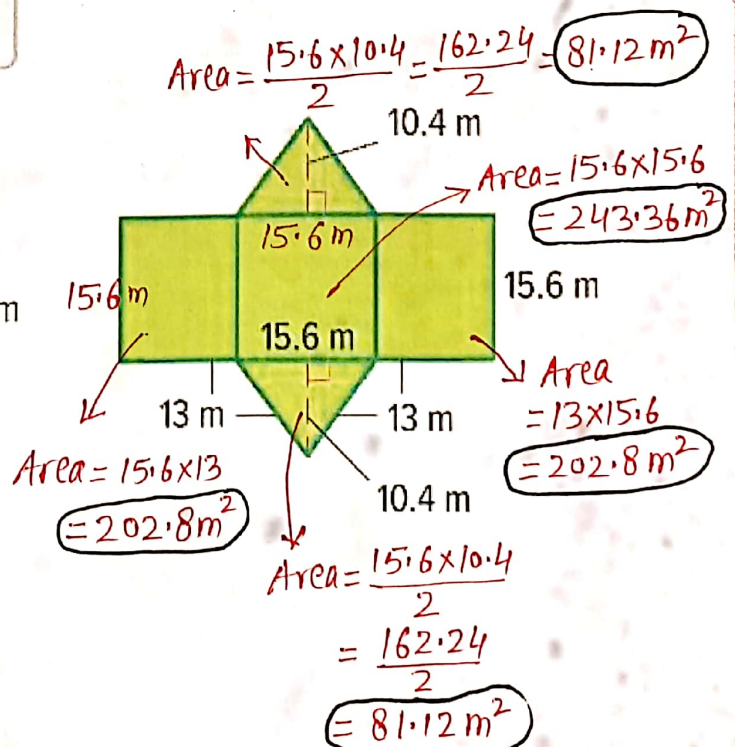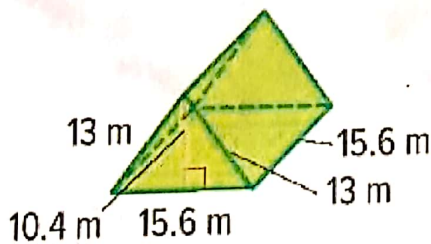
Total surface Area

$= 202.8+81.12+202.8+81.12$
$\qquad +243.36$

$= 811.2\ m^2$

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