



Helping With Math

USA
GRADES

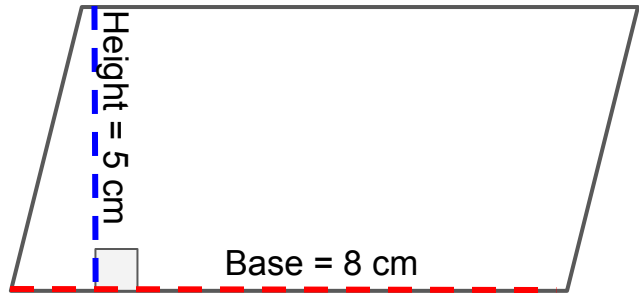
Area of a Parallelogram

Suitable for students
aged 9-11



This pack is suitable for learners aged 9-11 years old or 5th to 6th graders (USA). The content covers fact files and relevant basic and advanced activities involving the area of a parallelogram.

A **parallelogram** is a quadrilateral with two pairs of parallel opposite sides.



The **area of a parallelogram** is the amount of space occupied by the flat surface of a parallelogram shape. A parallelogram is quite similar to a rectangle as such the formula of its area is the same as a rectangle.

*Earth Day is a global event held annually every **April 22** to raise awareness and take appropriate action for a cleaner, better, & healthier environment.*



EARTH
DAY

Area of a Parallelogram

Base x Height

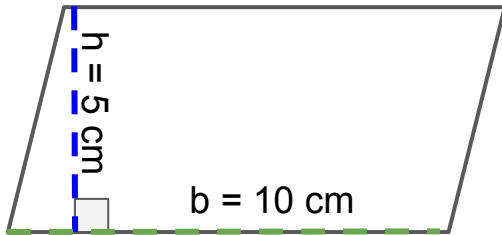
Example: $8 \text{ cm} \times 5 \text{ cm} = 40 \text{ cm}^2$

Area = 40 cm^2



AREA OF A PARALLELOGRAM

Example:



Area of a Parallelogram

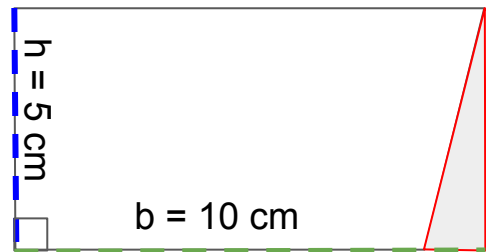
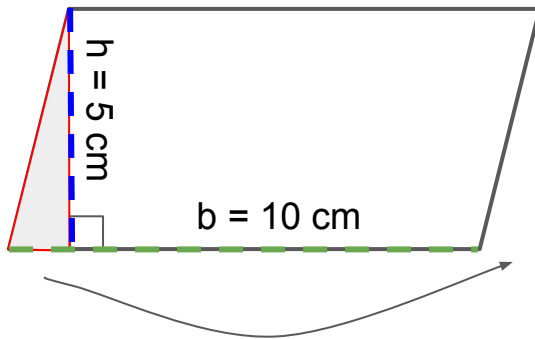
Base x Height

**b=base, h=height*

The area of a parallelogram is the same as the area of a rectangle. Why is this so?

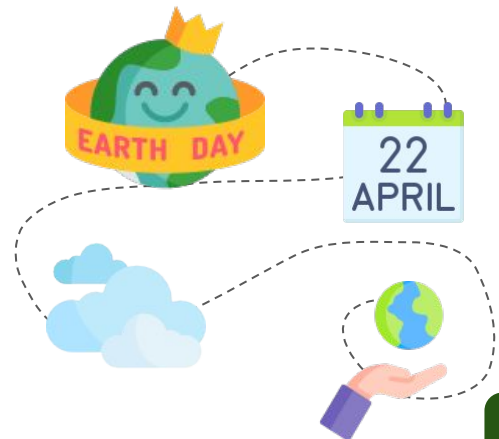
We know that a parallelogram has 1) two equal opposite sides 2) two intersecting and non-equal diagonals, and 3) equal and opposite angles.

Based on these data, if we cut one part of a parallelogram where the base and height are intersecting and perpendicular to each other and transfer this triangle to the other side of the parallelogram, this forms a rectangle with the same length of base and height.



Solution: base x height

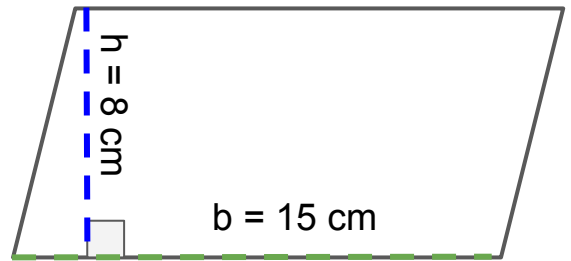
- Base = 10 cm & Height = 5 cm
- 10 cm x 5 cm
- 50 cm²
- **Area = 50 cm²**



CALCULATING THE AREA OF A PARALLELOGRAM

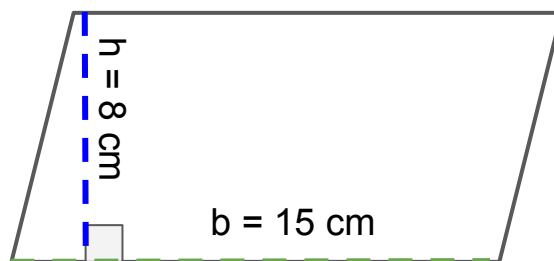
1. Note the formula for area of a parallelogram:
base (b) x height (h)

2. Measure the base and height of the parallelogram and make sure that all measurements have the same unit of measurement.



3. Replace b and h in the formula with the measurement. Solve the equation.

- $15 \text{ cm} \times 8 \text{ cm}$
- 120 cm^2
- **Area = 120 cm^2**



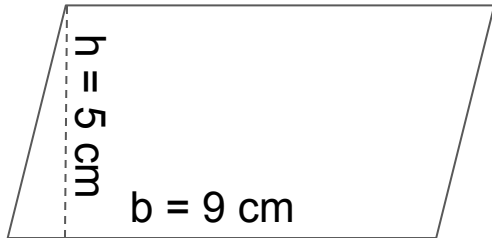
Solution: The area of this parallelogram is **120 cm^2**



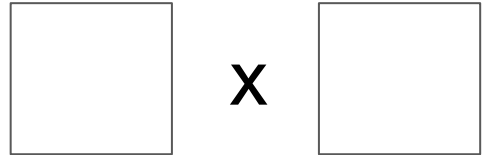
FINDING THE AREA EXERCISES

Compute for the area of the below parallelograms:

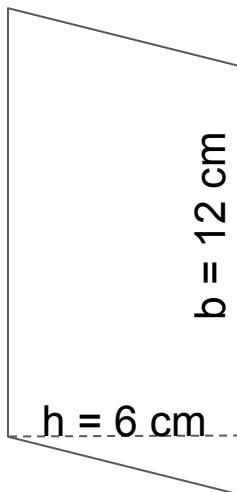
1.



Solution:



2.



Solution:



TABLE OF ACTIVITIES

Ages 9-10 (Basic) <u>5th Grade</u>	
1	Earth Day 2022
2	How It Came To Be...
3	Environmental Issues
4	Global Clean Up
5	Sustainable Living
Ages 10-11 (Advanced) <u>6th Grade</u>	
6	Show Your Support
7	Volunteer Toolkits
8	Earth Day Challenge
9	Invest In Our Planet
10	Our Planet's Future




Earth Day is held annually on April 22. This year's theme is *Invest In Our Planet*. We have to engage citizens, businesses, and the government together to act on climate change issues. Join the movement and calculate for the parallelogram. Note down your answers in the boxes provided in each number.

1. **SAVE THE PLANET!**

$h = 20 \text{ in}$


$b = 25 \text{ in}$



2. **Stop Climate Change!**

$h = 16 \text{ in}$

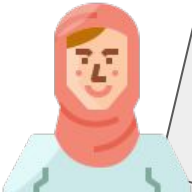
$b = 15 \text{ in}$



3. **ACTION NOW!**

$h = 10 \text{ in}$


$b = 14 \text{ in}$



4. **We only have One Earth!**

$h = 23 \text{ in}$


$b = 29 \text{ in}$



5. **One World**

$h = 9 \text{ in}$

$b = 11 \text{ in}$



HOW IT CAME TO BE...

G5
Basic

Learn about how Earth Day came to be. Answer the word problems below. Show your solutions.

1. The area of a parallelogram 96 cm^2 . The base is 12 cm . What is the height of this parallelogram?

Answer/Solution:

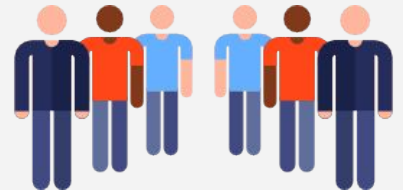


**EARTH
DAY**

The first Earth Day was in 1970.

2. The height of a parallelogram is 25 cm . Its total area is 150 cm^2 . What is the length of the base?

Answer/Solution:



It was the efforts of Sen. Gaylord Nelson, Cong. Pete McCloskey, & Denis Hayes that jump started Earth Day.

3. The base of a parallelogram is 42 cm and the height is 9 cm . What is the area of this parallelogram?

Answer/Solution:



Earth Day went global in 1990.

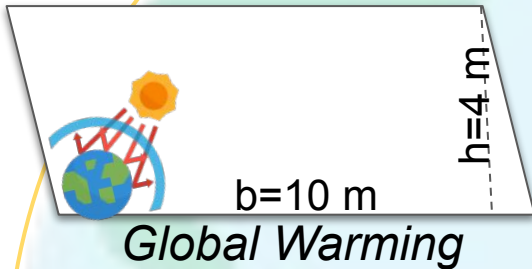


ENVIRONMENTAL ISSUES

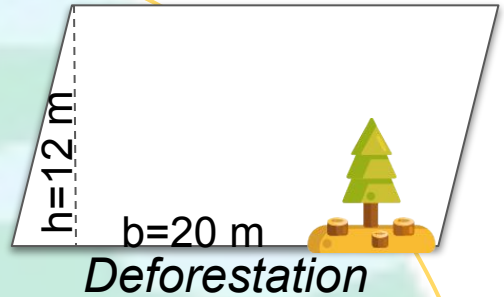
G5
Basic

Help spread awareness on environmental issues that our world is facing. Calculate for the area of each parallelogram and note your answer inside the corresponding parallelogram.

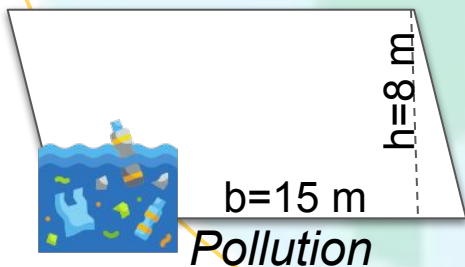
1.



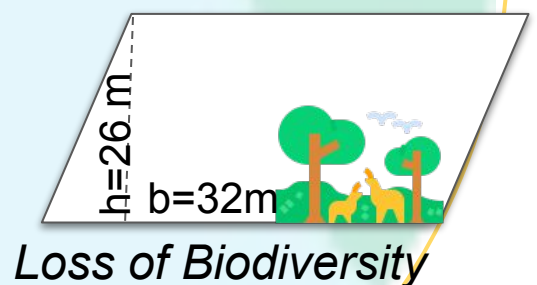
2.



3.



4.



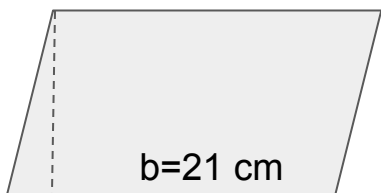
GLOBAL CLEAN UP

G5

Basic

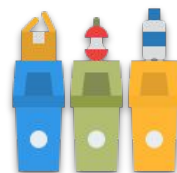
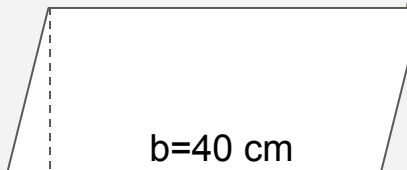
Join the global effort to clean up pollution. Help pick up the garbage and throw them away in the correct areas. Connect a line from the parallelogram on the right to their corresponding height value on the left.

1. Area = 168 cm^2



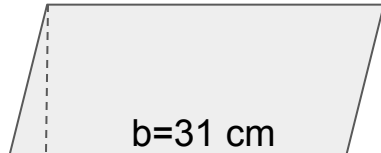
9 cm

2. Area = 480 cm^2



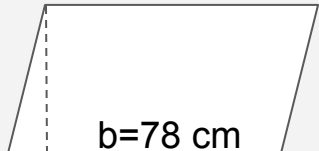
8 cm

3. Area = 279 cm^2



10 cm

4. Area = 780 cm^2



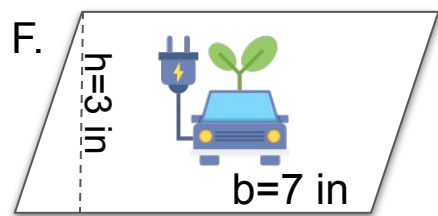
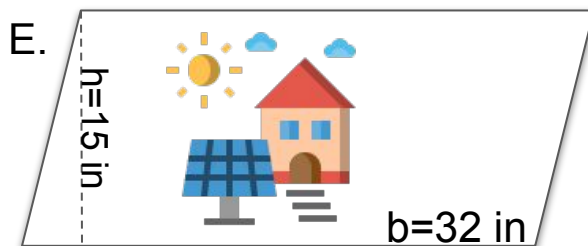
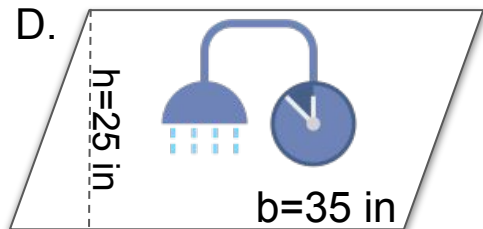
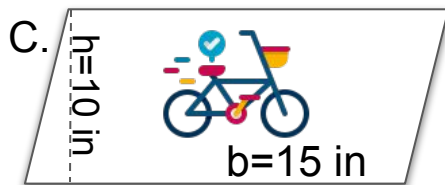
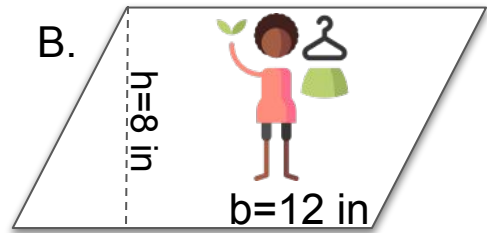
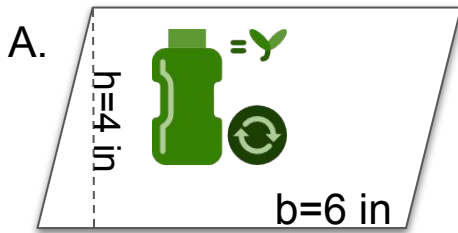
12 cm



SUSTAINABLE LIVING

G5
Basic

Choose sustainable items that help preserve our environment. There have been a lot of sustainable ways to protect the Earth. Match the area to each parallelogram. Note the letter of your answer in the space provided for each number.



	1	2	3	4	5
Area	150 in ²	875 in ²	24 in ²	480 in ²	96 in ²
Answer					



SHOW YOUR SUPPORT

G6
Advanced

Participate and show your support for Earth Day. Below are some examples of what you can do. Answer the word problems and show your solutions.

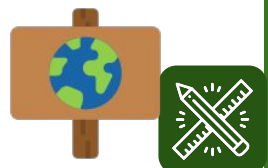
1. Choreograph a viral dance and talk about environmental issues that are important to you. Make sure that your dance formation is in the shape of a parallelogram. The distance between Person A and Person B should be six feet. The height from Person A and Person B to the other pair of dancers is seven feet. What is the parallelogram area covered by the dance formation?

Answer/Solution:



2. Create parallelogram signages for the Earth Day rally. We need them to have a base measurement of 30 inches and a height of 25 inches. What is the area of these signages?

Answer/Solution:

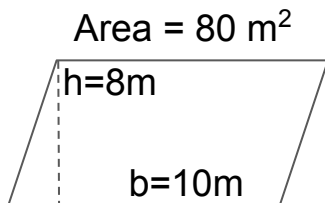


VOLUNTEER TOOLKITS

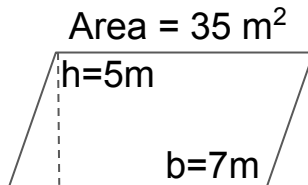
G6
Advanced

The Earth Day organization offers toolkits on their website to guide you teach-in strategies to spread knowledge on environmental matters. Encircle the letter of the parallelogram with the wrong area. Based on the base and height measurements, note the correct area on the space provided.

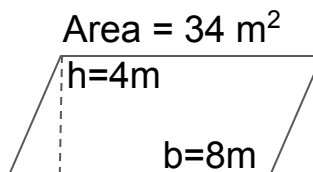
1. **Teach-In Tool Kit**  Correct Area



A.

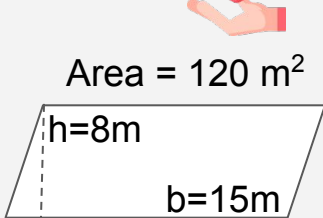


B.

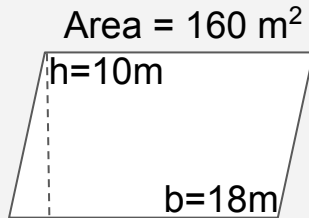


C.

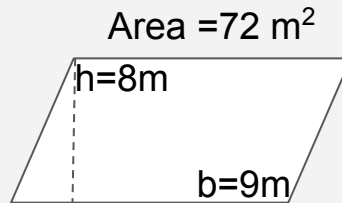
2.  **Protect Our Species Tool Kit** Correct Area



A.

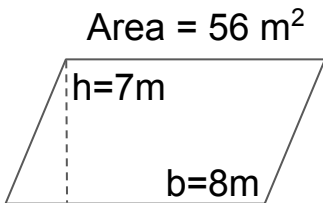


B.

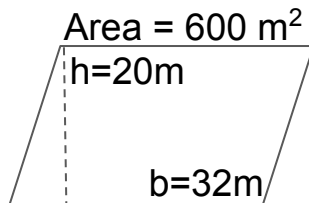


C.

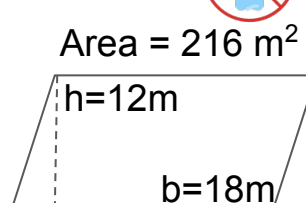
3. **Plastic Pollution Primer Tool Kit**  Correct Area



A.

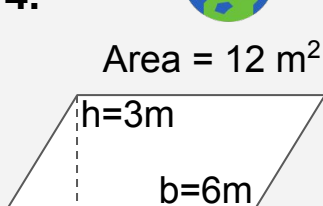


B.

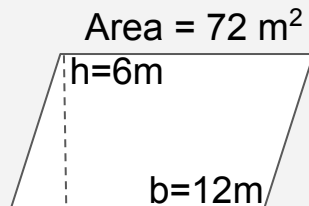


C.

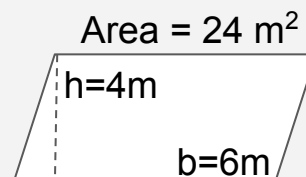
4.  **Climate Education Week Tool Kit** Correct Area



A.



B.



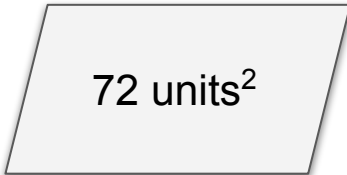
C.

EARTH DAY CHALLENGE

G6
Advanced

Challenge yourself on Earth Day. Do several tasks that can help our environment. Encircle the letter of the correct answer that contains the base and height measurements corresponding to the area of the parallelogram in each number.

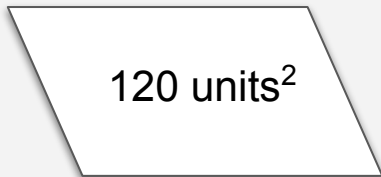
1.



- a. $b=6 / h=5$ c. $b=8 / h=7$
b. $b=9 / h=8$ d. $b=5 / h=4$



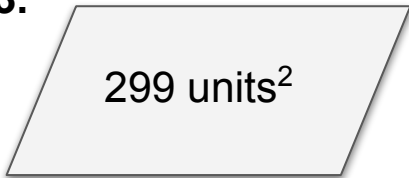
2.



- a. $b=15 / h=13$ c. $b=12 / h=10$
b. $b=11 / h=10$ d. $b=14 / h=12$



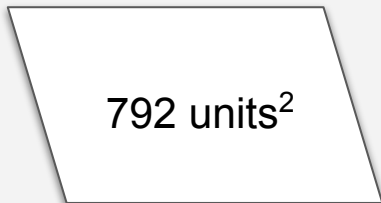
3.



- a. $b=32 / h=22$ c. $b=20 / h=15$
b. $b=23 / h=13$ d. $b=25 / h=10$



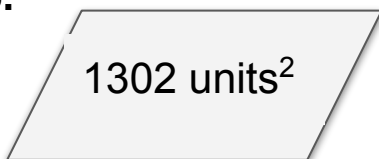
4.



- a. $b=34 / h=23$ c. $b=35 / h=21$
b. $b=33 / h=25$ d. $b=36 / h=22$



5.



- a. $b=42 / h=31$ c. $b=45 / h=36$
b. $b=49 / h=32$ d. $b=40 / h=31$



INVEST IN OUR PLANET

G6
Advanced

Our governments and business should understand the importance of taking care of our world. We need them to invest in our planet! Solve the word problems below and encircle the letter of the correct answer. Show your solutions.

1. We need the government to support legislative action that preserves nature and improves the environment. We need to protect forest areas in several countries. A forest area in the shape of a parallelogram has a base of 25 miles and a height of 20 miles. What is the area of this forest that we need to protect?

Solution:



- a. 400 mi² c. 500 mi²
b. 300 mi² d. 200 mi²

2. Corporations tend to forget their responsibilities to the Earth and prefer to make profits at the expense of destroying nature. Demand to convert the parking lot into a park with lots of plants and trees. The parallelogram-shaped park has an area of 150 km². The base is 15 km long. What is the height of this parallelogram park?

Solution:



- a. 20 km c. 40 km
b. 10 km d. 30 km



OUR PLANET'S FUTURE

G6
Advanced

What are ways that you can think of to help our planet's future? Draw three of your ideas and incorporate a parallelogram in each one. Use your ruler to measure the base and height, then calculate the area of the three parallelograms. Note all the measurements and the area on the space provided.



	Parallelogram 1		Parallelogram 2		Parallelogram 3	
Measurements						
Area						



ANSWER GUIDE

Activity 1

1. 500 in^2
2. 240 in^2
3. 140 in^2
4. 667 in^2
5. 99 in^2

Activity 2

1. Area = 96 cm^2 , Base = 12 cm
 $96 \text{ cm}^2 / 12 \text{ cm} = 8 \text{ cm}$
The height of the parallelogram is 8 cm
2. Height = 25 cm , 150 cm^2
 $150 \text{ cm}^2 / 25 \text{ cm} = 6 \text{ cm}$
The base of the parallelogram is 6 cm
3. Base = 42 cm , Height = 9 cm
 $42 \text{ cm} \times 9 \text{ cm} = 378 \text{ cm}^2$
The area of this parallelogram is 378 cm^2

Activity 3

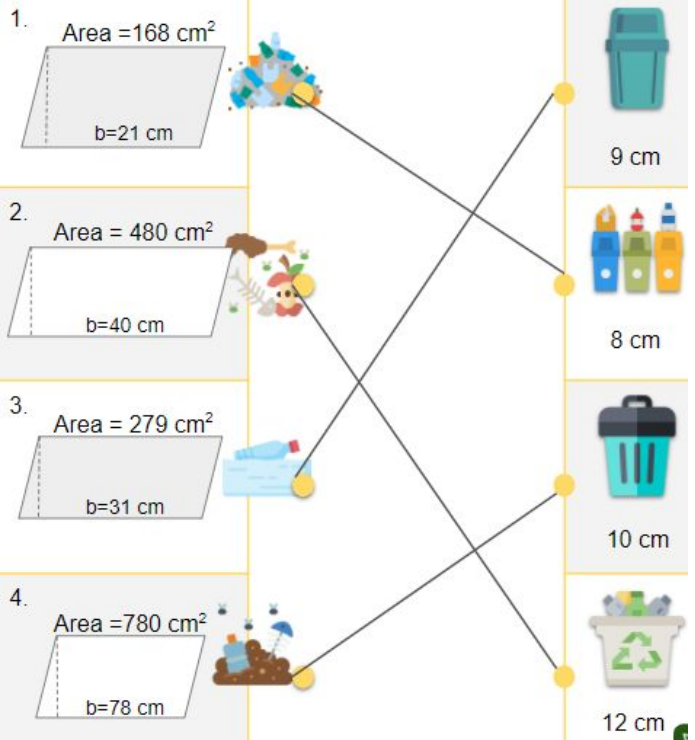
1. 40 m^2
2. 240 m^2
3. 120 m^2
4. 832 m^2



ANSWER GUIDE

Activity 4

1. 8 cm
2. 12 cm
3. 9 cm
4. 10 cm



Activity 5

1. 40 m^2
2. 240 m^2
3. 120 m^2
4. 832 m^2

Activity 6

1. C
2. D
3. A
4. E
5. B



ANSWER GUIDE

Activity 7

1. Distance between Person A & Person B: 6 ft
Height: 7 ft

$$\text{Area: } 6 \text{ ft} \times 7 \text{ ft} = 42 \text{ ft}^2$$

$$\text{Area: } 42 \text{ ft}^2$$

2. Base: 30 inches
Height: 25 inches

$$\text{Area: } 30 \text{ inches} \times 25 \text{ inches} = 750 \text{ in}^2$$

$$\text{Area: } 750 \text{ in}^2$$

Activity 8

1. C. - Correct Area: 32 m^2
2. B. - Correct Area: 180 m^2
3. B. - Correct Area: 640 m^2
4. A. - Correct Area: 18 m^2

Activity 9

1. **C. 500 mi^2**

Base: 25 mi, Height: 20 mi

$$\text{Area: } 25 \text{ mi} \times 20 \text{ mi} = 500 \text{ mi}^2$$

2. **B. 10 km**

Base: 15 km

$$\text{Area: } 150 \text{ km}^2$$

$$\text{Length: } 150 \text{ km}^2 / 15 \text{ km} = 10 \text{ km}$$

Activity 10

Answers may vary.



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