## Volume

## Cube:

| Tips and Hints | Example |  |
| :---: | :--- | :---: |
| $V=s^{3}$ | Find the volume: |  |

## Rectangular Prism:

| Tips and Hints | Example |
| :---: | :---: |
| $V=B \boldsymbol{h}$ or $V=h \boldsymbol{h}$ | Find the volume: |

## Triangular Prism:

| Tips and Hints | Example |
| :--- | :--- |
| - $\boldsymbol{V}=\boldsymbol{B} \boldsymbol{h}$ | Find the volume: |
| - Find the area of the base (a triangle, |  |
| $\boldsymbol{A}=\frac{1}{2} \boldsymbol{b} h$ ), then multiply by the height |  |
| of the prism |  |

## Surface Area

## Rectangular Prism and Cube:

| Tips and Hints | Example |
| :---: | :---: |
| - Find the area of all 6 surfaces, then add them together <br> - Draw each surface to help you <br> - Rectangle: $S A=2 l w+2 l h$ $+2 w h$ <br> - Cube: $\mathrm{SA}=\mathbf{6} \mathbf{s}^{\mathbf{2}}$ | Find the surface area: <br> 1. <br> 2. |

## Triangular Prism:

| Tips and Hints | Example |
| :--- | :--- |
| - Find the area of all surfaces, then add | Find the surface area: |
| them together |  |
| - Don't forget, the area of a triangle is |  |
| found by using $A=\frac{1}{2} \boldsymbol{b} h$ |  |
| - Draw each surface to help you |  |

## Pyramid:

## Tips and Hints

- Find the area of all surfaces, then add them together
- Don't forget, the area of a triangle is found by using $A=\frac{1}{2} b h$. Use the slant height for this!
- Draw each surface to help you


## Example

Find the surface area:


1. Find the volume of the rectangular prism

A. 33 in $^{3}$
B. $90 \mathrm{in}^{3}$
C. 900 in $^{3}$
D. $50 \mathrm{in}^{3}$
2. What is the volume of the shipping container shown?

A. $\circ 6,912$ cubic centimeters
B. 108 cubic centimeters
C. 0864 cubic centimeters
D. 03,456 cubic centimeters
3. Find the volume of the rectangular prism.

A. $81 \mathrm{in}^{3}$
B. 12 in $^{3}$
C. 9 in $^{3}$
D. ${ }^{18}$ in $^{3}$ 4
4. Find the volume of the rectangular prism. Round the answer to the nearest tenth

A. $0457.2 \mathrm{~cm}^{3}$
B. $1,158.2 \mathrm{~cm}^{3}$
C. $193.0 \mathrm{~cm}^{3}$
D. $1,386.2 \mathrm{~cm}^{3}$
5. What is the volume of a shoebox that measures 14 inches by 8 inches by 8 inches?
A. 176 in $^{3}$
B. 896 in $^{3}$
C. $112 \mathrm{in}^{3}$
D. 224 in $^{3}$
6. Find the surface area of the rectangular prism
A. $0 \quad 25 \mathrm{ft}^{2}$

B. $037 \frac{1}{2} \mathrm{ft}^{2}$
C. $012 \frac{1}{2} \mathrm{ft}^{2}$
D. $06 \frac{1}{4} \mathrm{ft}^{2}$
7. Find the volume of the triangular prism.

A. 0160 cubic inches
B. 0320 cubic inches
C. 080 cubic inches
D. 0640 cubic inches
8. Find the volume of the prism.

A. 160 in $^{3}$
B. $080 \mathrm{in}^{3}$
C. 018 in $^{3}$
D. $26 \mathrm{in}^{3}$
9. Find the surface area of the rectangular prism

A. 0220 in $^{2}$
B. 340 in $^{2}$
C. 360 in $^{2}$
D. $0460 \mathrm{in}^{2}$
10. Find the volume of the prism below.

A. $\circ 5600 \mathrm{ft}^{3}$
B. $6400 \mathrm{ft}^{3}$
C. $04200 \mathrm{ft}^{3}$
D. $04800 \mathrm{ft}^{3}$
11. The base of a right prism has an area of 10 square feet. The height of the prism is 6 feet. What is its volume?
A. $060 \mathrm{ft}^{3}$
B. $0360 \mathrm{ft}^{3}$
C. $0120 \mathrm{ft}^{3}$
D. $180 \mathrm{ft}^{3}$
12. Find the surface area of the rectangular prism. Round to the nearest square foot.

B. $026 \mathrm{ft}^{2}$
C. 0188 ft ${ }^{2}$
D. 104 ft $^{2}$
13. Find the surface area of the rectangular prism.
6.31 ft
A. $060 \mathrm{ft}^{2}$
B. $\circ 84 \mathrm{ft}^{2}$
C. $0104 \mathrm{ft}^{2}$
D. $052 \mathrm{ft}^{2}$
14. Find the surface area of the triangular 3ari

8 cm
5 cm
A. $06 \mathrm{~cm}^{2}$
B. $108 \mathrm{~cm}^{2}$
C. $120 \mathrm{~cm}^{2}$
D. $136 \mathrm{~cm}^{2}$
17. Find the surface area of the triangular pri-

A. $0540 \mathrm{~m}^{2}$
B. $1,080 \mathrm{~m}^{2}$
C. $1,200 \mathrm{~m}^{2}$
D. $0672 \mathrm{~m}^{2}$
14. Find the surface area of the


8 ft .
A. $0174 \mathrm{ft}^{2}$
B. $0132 \mathrm{ft}^{2}$
C. $264 \mathrm{ft}^{2}$
D. $0312 \mathrm{ft}^{2}$
16. Find the surface area of the triangular prisis in

A. 612 in $^{2}$
B. 306 in $^{2}$
C. $720 \mathrm{in}^{2}$
D. $402 \mathrm{in}^{2}$
18. Find the surface area of the triangular prism

A. $270 \mathrm{yd}^{2}$
B. $6610 \mathrm{yd}^{2}$
C. $540 \mathrm{yd}^{2}$
D. $600 \mathrm{yd}^{2}$
19. Find the surface area of the pyramid

A. $72 \mathrm{in}^{2}$
B. $\circ 88 \mathrm{in}^{2}$
C. $70 \mathrm{in}^{2}$
D. $106 \mathrm{in}^{2}$
21. Find the surface area of the pyramid.

A. $\circ 176 \mathrm{ft}^{2}$
B. $284 \mathrm{ft}^{2}$
C. $0240 \mathrm{ft}^{2}$
D. $196 \mathrm{ft}^{2}$
20. Find the surface area of the pyramid

A. $0336 \mathrm{~cm}^{2}$
B. $0480 \mathrm{~cm}^{2}$
C. $0396 \mathrm{~cm}^{2}$
D. $0564 \mathrm{~cm}^{2}$
22. Find the surface area of the pyramid
A. 0148 in $^{2}$

B. 0123 in $^{2}$
C. 0117.25 in $^{2}$
D. 0178.75 in $^{2}$
$\qquad$

## Area of a Triangle

To find the area of a triangle, use the formula area= $\frac{1}{2} \times$ base $\times$ height or $A=\frac{1}{2} \times b \times h$. example:

$$
\begin{array}{ll}
A=\frac{1}{2} \times b \times h & A=\frac{1}{2} \times 7 \mathrm{~cm} \times 4 \mathrm{~cm} \\
\text { base }=7 \mathrm{~cm} & A=\frac{1}{2} \times 28 \mathrm{~cm}^{2} \\
\text { height }=4 \mathrm{~cm} & A=14 \mathrm{~cm}^{2}
\end{array}
$$

Find the area of each triangle.
a.

b.

c.

area $=$ $\qquad$ area = $\qquad$ area = $\qquad$
d.

e.

f.

area $=$ $\qquad$ area $=$ $\qquad$
area $=$
$\qquad$

Find the area of a triangle using the base and height measurements.
g.
h.

$$
\begin{aligned}
& \mathbf{b}=10 \text { centimeters } \\
& \mathbf{h}=15 \text { centimeters }
\end{aligned}
$$

i.
b $=7$ kilometers
h $=22$ kilometers
$\qquad$ area = $\qquad$ area = $\qquad$

## ANSWER KEY

## Area of a Triangle

To find the area of a triangle, use the formula area= $\frac{1}{2} \mathbf{x}$ base $\mathbf{x}$ height or $A=\frac{1}{2} \times b \times h$.
example:


$$
\begin{aligned}
& A=\frac{1}{2} \times b \times h \\
& \text { base }=7 \mathrm{~cm} \\
& \text { height }=4 \mathrm{~cm}
\end{aligned}
$$

$A=\frac{1}{2} \times 7 \mathrm{~cm} \times 4 \mathrm{~cm}$
$A=\frac{1}{2} \times 28 \mathrm{~cm}^{2}$
$\mathrm{A}=14 \mathrm{~cm}^{2}$

Find the area of each triangle.
a.

b.

c.

area $=$ $\qquad$
area $=$ $\qquad$
area $=$ $\qquad$
$85 \mathrm{~cm}^{2}$
d.

e.

f.

area $=$ $\qquad$
area $=$ $\qquad$
$\qquad$
h.
$\mathbf{b}=10$ centimeters
$\mathbf{h}=15$ centimeters
area $=$ $\qquad$
$200 \mathrm{~cm}^{2}$

Find the area of a triangle using the base and height measurements.
g.

$$
\begin{aligned}
& \boldsymbol{b}=14 \text { meters } \\
& \boldsymbol{h}=20 \text { meters }
\end{aligned}
$$

i.

$$
\begin{aligned}
& \mathbf{b}=7 \text { kilometers } \\
& \mathbf{h}=22 \text { kilometers }
\end{aligned}
$$

$\qquad$ area $=\quad 75 \mathrm{~cm}^{2}$ area $=$

77 km ${ }^{2}$
$\qquad$

## Area of a Triangle

To find the area of a triangle, use the formula area= $\frac{1}{2} \mathbf{x}$ base $\mathbf{x}$ height or $A=\frac{1}{2} \times b \times h$.
example:


$$
\begin{array}{ll}
A=\frac{1}{2} \times b \times h & A=\frac{1}{2} \times 7 \mathrm{~cm} \times 4 \mathrm{~cm} \\
\text { base }=70 \mathrm{~mm}(7 \mathrm{~cm}) & A=\frac{1}{2} \times 28 \mathrm{~cm}^{2} \\
\text { height }=4 \mathrm{~cm} & A=14 \mathrm{~cm}^{2}
\end{array}
$$

Find the area of each triangle. Some triangles have mixed units.
a.

b.

c.

area $=$ $\qquad$ area $=$ $\qquad$ area $=$ $\qquad$
d.

e.

f.

area $=$ $\qquad$ area = $\qquad$ area $=$ $\qquad$

Find the area of each triangle using the base and height measurements.
g. $\quad \mathbf{b}=75.33$ meters
h. $\quad \mathbf{b}=47.2$ centimeters
h = 595 millimeters
i. $\quad \mathbf{b}=.875$ meters
$h=92$ centimeters
$\qquad$ area $=$ $\qquad$ area $=$ $\qquad$

## ANSWER KEY

## Area of a Triangle

To find the area of a triangle, use the formula area= $\frac{1}{2} \times$ base $\mathbf{x}$ height or $A=\frac{1}{2} \times b \times h$. example:

$$
\begin{array}{ll}
A=\frac{1}{2} \times b \times h & A=\frac{1}{2} \times 7 \mathrm{~cm} \times 4 \mathrm{~cm} \\
\text { base }=70 \mathrm{~mm}(7 \mathrm{~cm}) & A=\frac{1}{2} \times 28 \mathrm{~cm}^{2} \\
\text { height }=4 \mathrm{~cm} & A=14 \mathrm{~cm}^{2}
\end{array}
$$

Find the area of each triangle. Some triangles have mixed units.
a.

b.

c.

area $=868.5 \mathrm{~cm}^{2}$ or $86,850 \mathrm{~mm}^{2}$ area $=$ $\qquad$
d.

e.
f.

area $=$ $\qquad$
area $=\underline{7.875 \mathrm{~m}^{2} \text { or } 78,750 \mathrm{~cm}^{2}}$
area $=\underline{0.492 \mathrm{~km}^{2} \text { or } 492,000 \mathrm{~m}^{2}}$

Find the area of each triangle using the base and height measurements.
g. $\quad \mathbf{b}=75.33$ meters
h. $\quad \mathbf{b}=47.2$ centimeters
$\boldsymbol{h}=595$ millimeters
i. $\quad \mathbf{b}=.875$ meters
h = 92 centimeters
area $=$ $\qquad$

$\qquad$

## Area of a Trapezoid

The formula for finding the area of a trapezoid is Area $=\frac{1}{2} \times$ height $\times$ (base $a+$ base $b$ ). This is written as $\mathbf{A}=\frac{1}{2} \boldsymbol{h}(\boldsymbol{a}+\boldsymbol{b})$.


$$
\begin{aligned}
& \mathrm{A}=\frac{1}{2} h(a+b) \\
& \mathrm{A}=\frac{1}{2} \times 2 \mathrm{~cm}(2 \mathrm{~cm}+4 \mathrm{~cm}) \\
& \mathrm{A}=\frac{1}{2} \times 2 \mathrm{~cm}(6 \mathrm{~cm}) \\
& \mathrm{A}=1 \mathrm{~cm}(6 \mathrm{~cm}) \\
& \mathrm{A}=6 \mathrm{~cm}^{2}
\end{aligned}
$$

Find the areas of the trapezoids.


7 mm


$$
A=
$$

$\qquad$
8 cm


$$
A=
$$

$\qquad$

## Area of a Trapezoid

The formula for finding the area of a trapezoid is Area $=\frac{1}{2} \times$ height $\times$ (base $a+$ base $b$ ). This is written as $\mathbf{A}=\frac{1}{2} \boldsymbol{h}(\boldsymbol{a}+\boldsymbol{b})$.


$$
\begin{aligned}
& \mathrm{A}=\frac{1}{2} h(a+b) \\
& \mathrm{A}=\frac{1}{2} \times 2 \mathrm{~cm}(2 \mathrm{~cm}+4 \mathrm{~cm}) \\
& \mathrm{A}=\frac{1}{2} \times 2 \mathrm{~cm}(6 \mathrm{~cm}) \\
& \mathrm{A}=1 \mathrm{~cm}(6 \mathrm{~cm}) \\
& \mathrm{A}=6 \mathrm{~cm}^{2}
\end{aligned}
$$

Find the areas of the trapezoids.


7 mm

$A=42 \mathrm{~m}^{2}$


$$
\mathrm{A}=\quad 12 \mathrm{~km}^{2}
$$

$\qquad$

## Area of a Trapezoid

Find the areas of the trapezoids using the formula $\mathbf{A}=\frac{1}{2} \boldsymbol{h}(\boldsymbol{a}+\boldsymbol{b})$.


The state of Nevada is roughly shaped like a trapezoid. What, approximately, is the area of the state?

$\qquad$

A trapezoid has bases of 76.85 millimeters and
83.29 millimeters and a height of 120.24 millimeters.

What is the area of this trapezoid?

## Area of a Trapezoid

Find the areas of the trapezoids using the formula $\mathbf{A}=\frac{1}{2} \boldsymbol{h}(\boldsymbol{a}+\boldsymbol{b})$.

$1,792.44 \mathrm{~cm}^{2}$



The state of Nevada is roughly shaped like a trapezoid. What, approximately, is the area of the state?


A trapezoid has bases of 76.85 millimeters and 83.29 millimeters and a height of 120.24 millimeters. What is the area of this trapezoid?
$\qquad$

## Area of a Trapezoid



Find the areas of the trapezoids.


$$
A=
$$

$\qquad$

$\qquad$

$$
A=
$$



$$
A=
$$

$\qquad$


$$
A=
$$

$\qquad$

## Area of a Trapezoid

|  | $\begin{aligned} & \mathbf{A}=\frac{1}{2} \boldsymbol{h}(\boldsymbol{a}+\boldsymbol{b}) \\ & \mathrm{A}=\frac{1}{2} \times 8 \mathrm{~cm}(10 \mathrm{~cm}+16 \mathrm{~cm}) \\ & \mathrm{A}=\frac{1}{2} \times 8 \mathrm{~cm}(26 \mathrm{~cm}) \\ & \mathrm{A}=4 \mathrm{~cm}(26 \mathrm{~cm}) \\ & \mathrm{A}=104 \mathrm{~cm}^{2} \end{aligned}$ |
| :---: | :---: |

Find the areas of the trapezoids.


$$
\mathrm{A}=\frac{198 \mathrm{~m}^{2}}{}
$$



$$
\mathrm{A}=\quad 806 \mathrm{~mm}^{2}
$$



$$
\mathrm{A}=\quad 12,363 \mathrm{~km}^{2}
$$



$$
A=\quad 17,024 \mathrm{~cm}^{2}
$$

$\qquad$

## Area of a Parallelogram



Find the areas of the parallelograms.

$A=$ $\qquad$

$\qquad$


$$
A=
$$

$\qquad$

## ANSWER KEY

## Area of a Parallelogram



Find the areas of the parallelograms.


$$
A=\frac{444 \mathrm{~m}^{2}}{}
$$

$$
A=
$$

$\qquad$


$$
A=\quad 126,300 \mathrm{~cm}^{2}
$$

$\qquad$

## Area of a Parallelogram

The formula for finding the area of a parallelogram is Area $=$ base $\times$ height.
This is written as $\mathbf{A}=\boldsymbol{b} \boldsymbol{h}$.
Example:

$A=b h$
$A=4 \mathrm{~cm}(2 \mathrm{~cm})$
$A=8 \mathrm{~cm}^{2}$

Find the areas of the parallelograms.

$A=$ $\qquad$


$$
A=
$$

$\qquad$


$$
A=
$$

$\qquad$

## ANSWER KEY

## Area of a Parallelogram

The formula for finding the area of a parallelogram is Area $=$ base $\times$ height.
This is written as $\mathbf{A}=\boldsymbol{b} \boldsymbol{h}$.
Example:

$A=b h$
$A=4 \mathrm{~cm}(2 \mathrm{~cm})$
$A=8 \mathrm{~cm}^{2}$

Find the areas of the parallelograms.


8 mm

$A=$
$\qquad$

$$
\mathrm{A}=\frac{18 \mathrm{~cm}^{2}}{}
$$

$\qquad$

## Area of a Parallelogram

Find the areas of the parallelograms using the formula $\mathbf{A}=\boldsymbol{b} \boldsymbol{h}$.

$\qquad$
$\qquad$


The state of Tennessee is very roughly shaped like a parallelogram. What, approximately, is the area of the state?

$\qquad$
*All mileage measurements are approximate.

A parallelogram has a base of 38.21 millimeters and a height of 115.3 millimeters. What is the area of this parallelogram?

## Area of a Parallelogram

Find the areas of the parallelograms using the formula $\mathbf{A}=\boldsymbol{b} \boldsymbol{h}$.

874.2 cm ${ }^{2}$



## $4,661.8 \mathrm{~m}^{2}$

The state of Tennessee is very roughly shaped like a parallelogram. What, approximately, is the area of the state?
*All mileage measurements are approximate.

A parallelogram has a base of 38.21 millimeters and a height of 115.3 millimeters. What is the area of this parallelogram?

## $4,405.613 \mathrm{~mm}^{2}$

Name: $\qquad$

## Area of an Irregular Shape

Find the area of each shape. Remember to include units in your answer.
1.

2.

answer: $\qquad$ answer: $\qquad$ answer: $\qquad$

5.

9.7 mm
$\qquad$
$\qquad$
$\qquad$

## ANSWER KEY

## Area of an Irregular Shape

Find the area of each shape. Remember to include units in your answer. Note to teacher: Shapes may be divided differently.
1.

2.


answer: $27.73 \mathrm{~cm}^{2}$
answer: 68.09 m²$^{2}$
answer: $85.77 \mathrm{~mm}^{2}$
4.

$\qquad$ 82.56 m $^{2}$

Name: $\qquad$

## Area of an Irregular Shape

Find the area of each shape. Remember to include units in your answer.
1.

2.

3.

answer: $\qquad$
answer: $\qquad$
answer: $\qquad$
4.

5.

6.

$\qquad$ answer: $\qquad$
$\qquad$

## ANSWER KEY

## Area of an Irregular Shape

Find the area of each shape. Remember to include units in your answer. Note to teacher: Shapes may be divided differently.
1.

2.

3.

answer: $\quad 374$ cm$^{2}$
answer: 248 mm²
$\qquad$
$\qquad$ answer: $\qquad$
4.

5.

6.

answer: $\qquad$ $76 \mathrm{~m}^{2}$
answer: $\qquad$ $54 \mathrm{~cm}^{2}$
answer: $\qquad$ 84 mm $^{2}$
$\qquad$

## Area of an Irregular Shape

To find the area of an irregular shape made of two or more rectangles, cut the shape into two or more parts and add the area of each part.

## Area of Rectangle 1:

$A=1 \times W$
$A=8 \times 2.3$
$A=18.4 \mathrm{~m}^{2}$
Area of Rectangle 2:
$A=1 \times \mathrm{W}$
$A=1.6 \times 2.3$
$A=3.68 \mathrm{~m}^{2}$


Total Area:
$A=18.4 m^{2}+3.68 m^{2}$
$A=22.08 \mathrm{~m}^{2}$
Find the area of each shape. Include units in your answer.
1.

2.

3.

4.
4. 20 cm
8.2 cm


## ANSWER KEY

## Area of an Irregular Shape

To find the area of an irregular shape made of two or more rectangles, cut the shape into two or more parts and add the area of each part.

## Area of Rectangle 1:



A $=1 \times \mathrm{W}$
$A=8 \times 2.3$
$A=18.4 \mathrm{~m}^{2}$
Area of Rectangle 2:
$A=1 \times W$
$A=1.6 \times 2.3$
$A=3.68 \mathrm{~m}^{2}$


Total Area:
$A=18.4 m^{2}+3.68 m^{2}$
$A=22.08 \mathrm{~m}^{2}$
Find the area of each shape. Include units in your answer.
Note to teachers: Shapes may be divided differently.
1.

$A=18.66 \mathrm{~cm}^{2}$


$$
A=60.14 \mathrm{~m}^{2}
$$

2. 
3. 



$A=53.84 \mathrm{~mm}^{2}$
8.2 cm
$A=99.74 \mathrm{~cm}^{2}$
$\qquad$

## Area of an Irregular Shape

To find the area of an irregular shape made of two or more rectangles, cut the shape into two or more parts and add the area of each part.


Area of Rectangle 1:
$A=1 \times W$
$A=4 \times 3$
$A=12 \mathrm{~m}^{2}$
Area of Rectangle 2:
$A=1 \times w$
$A=5 \times 3$
$A=15 \mathrm{~m}^{2}$
Total Area:
$A=12 \mathrm{~m}^{2}+15 \mathrm{~m}^{2}$
$A=27 \mathrm{~m}^{2}$


Find the area of each shape. Include units in your answer.

2.

4.

3.


## ANSWER KEY

## Area of an Irregular Shape

To find the area of an irregular shape made of two or more rectangles, cut the shape into two or more parts and add the area of each part.


Area of Rectangle 1:
$A=1 \times W$
$A=4 \times 3$
$A=12 \mathrm{~m}^{2}$
Area of Rectangle 2:
$A=1 \times W$
$A=5 \times 3$
$A=15 \mathrm{~m}^{2}$
Total Area:
$A=12 m^{2}+15 m^{2}$
$A=27 \mathrm{~m}^{2}$


Find the area of each shape. Include units in your answer. Note to teachers: Shapes may be divided differently.
1.

3.

2.


$$
A=60 \mathrm{~mm}^{2}
$$

4. 



$$
A=44 \mathrm{~cm}^{2}
$$

