pg. 156-157 #3-11 odd AND pg. 162-163 #3-13 odd

3. 18 ft^2

5. 187 km^2

7. 243 in.^2

9. 15 meters was used for the height instead of 13 meters.
   $A = 8(13) = 104 \text{ m}^2$

11. 12 units^2

3. 6 cm^2

5. 1620 in.^2

7. 1125 cm^2

9. The side length of 13 meters was used instead of the height.
   $A = \frac{1}{2}(10)(12) = 60 \text{ m}^2$

11. 324 cm^2

13. 90 mi^2

pg. 170 #2-5, 7, 8, 10-14

2. height h and bases b_1 and b_2

3. $2\ell + 2w$; This is an expression for the perimeter of a rectangle. The other three are expressions for area (triangle, rectangle, and trapezoid).

4. 12 units^2

5. 24 units^2

7. 28 in.^{2}

8. 10 cm^2

10. The height was not included in the formula.

    $A = \dfrac{1}{2}(8)(6 + 14) = 80$ m^2

11. 8 units^2

12. 16 units^2

13. 12 units^2

14. 16 ft^2

pg. 173 #1-6

1. 36 units^2

2. 32 units^2

3. 20 units^2

4. 120 ft^2

5. $126\frac{1}{2}$ cm^2

6. 132 in.^{2}

Name ___Answers___ Date _____

4.3 Ext - Area of Composite Figures

Find the area of the shaded figure. Show all work.

1)
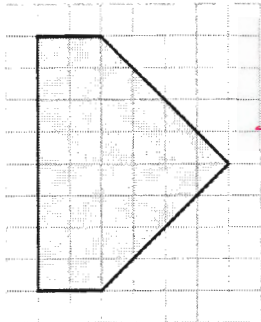
32 units²

2)
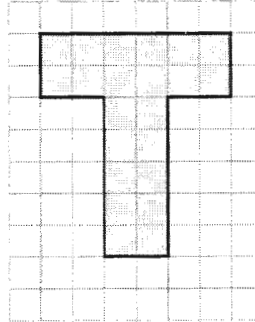
22 units²

3)
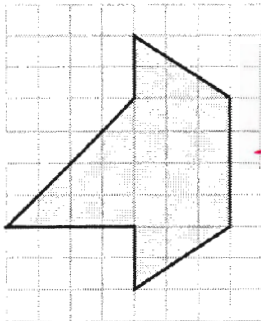
26 units²

4)
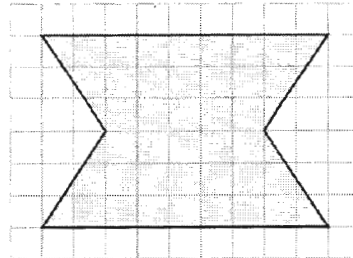
44 units²

5)

43 units²

6)

34 units²

7)

2 m

6 m

$28 m^2$

2 m

8 m

8)

4 ft

4 ft

5 ft

5 ft

8 ft

$64 ft^2$

9)

5 in.

4 in.

5 in.

6 in.

6 in.

$36 in^2$

10)

4 m

2 m

4 m

4 m

$24 m^2$

11)

15 yd

7 yd

5 yd

$180 yd^2$

12)

1 mm

8 mm

6 mm

2 mm

$20 mm^2$

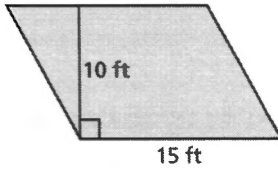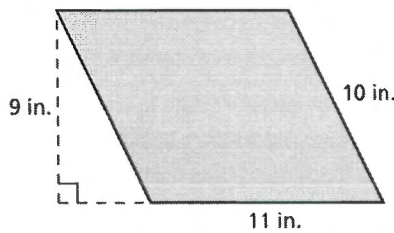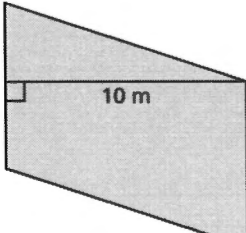Name _____Answers_____ Date _____
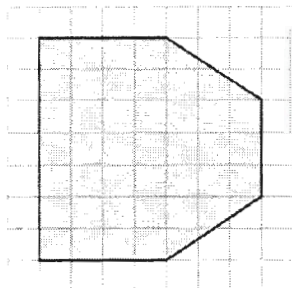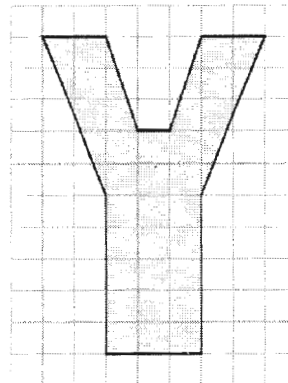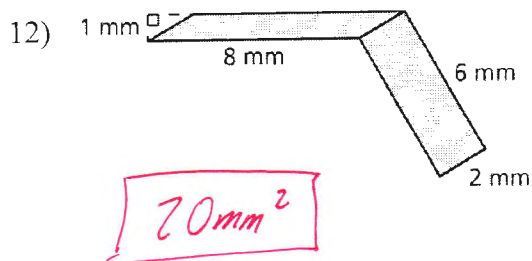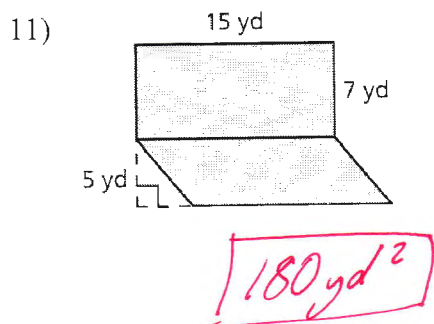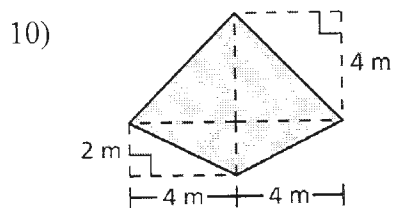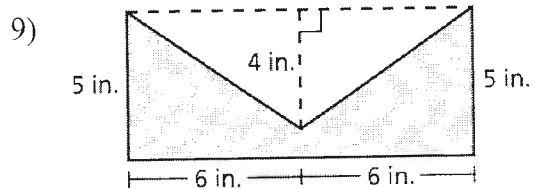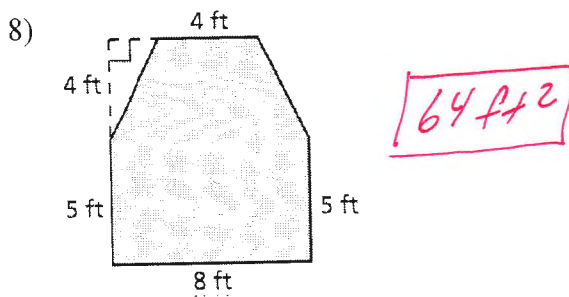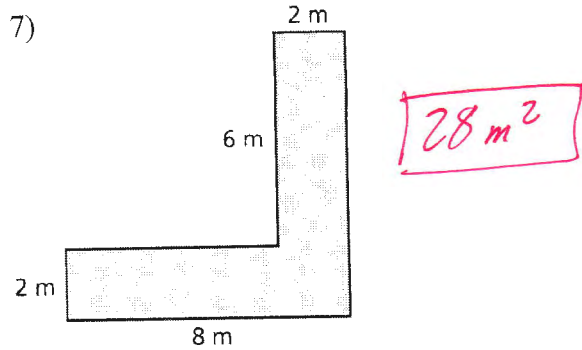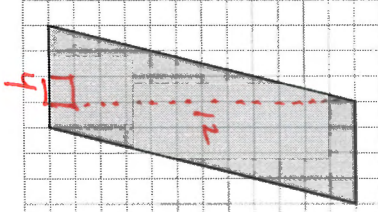
Chapter 4 - Study Guide

4.1 – Area of Parallelograms

Find the area of the parallelogram. SHOW ALL STEPS.

1)

10 ft

15 ft

$A = bh$
$= 15 \cdot 10$
$\boxed{= 150 \, ft^2}$

2)

9 in.

10 in. ← Not the height!!

11 in.

$A = bh$
$= 11 \cdot 9$
$\boxed{= 99 \, in^2}$

3)

10 m

7 m

$A = bh$
$= 7 \cdot 10$
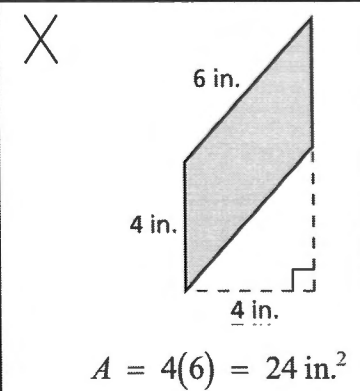$\boxed{= 70 \, m^2}$

4)

$A = bh$
$= 4 \cdot 12$
$= 48 \, units^2$

5) Describe and correct the error in finding the area of the parallelogram.
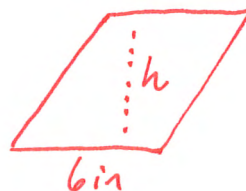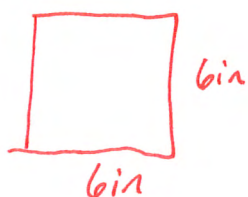
The side was used instead of the actual height.

$A = bh$
$= 4 \cdot 4$
$= \boxed{16 \, in^2}$
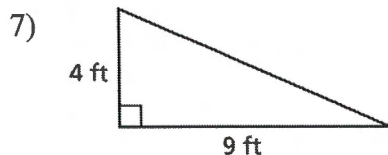
✗

6 in.

4 in.

4 in.

$A = 4(6) = 24 \text{ in.}^2$

6) A square has side length 6 inches. A parallelogram has a base of 6 inches. The area of the square is equal to the area of the parallelogram. What is the height of the parallelogram?
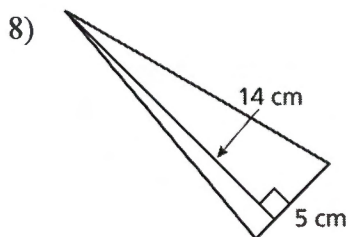
6in

6in

h

6in

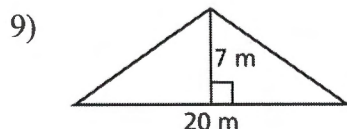The height of the parallelogram is 6in.

4.2 – Area of Triangles

Find the area of the triangle. SHOW ALL WORK!

7)

4 ft
9 ft

$$A = \tfrac{1}{2}bh$$
$$= \tfrac{1}{2} \cdot 9 \cdot 4$$
$$= \tfrac{1}{2} \cdot 36$$
$$\boxed{= 18\, ft^2}$$

8)

14 cm
5 cm

$$A = \tfrac{1}{2}bh$$
$$= \tfrac{1}{2} \cdot 5 \cdot 14$$
$$= \tfrac{1}{2} \cdot 70$$
$$\boxed{= 35\, cm^2}$$

9)

7 m
20 m

$$A = \tfrac{1}{2}bh$$
$$= \tfrac{1}{2} \cdot 20 \cdot 7$$
$$= \tfrac{1}{2} \cdot 140$$
$$\boxed{= 70\, m^2}$$

10) Describe and correct the error in finding the area of the triangle.

9 ft
20 ft

$$A = 20(9) = 180 \text{ ft}^2$$
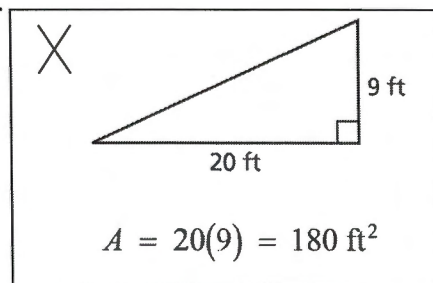
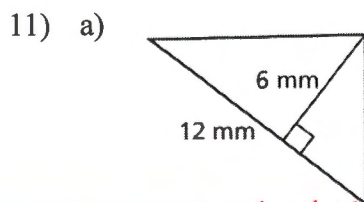The formula for a triangle is $A = \tfrac{1}{2}bh$.

They did not take half of the product.

$$A = \tfrac{1}{2} \cdot 20 \cdot 9$$
$$= \tfrac{1}{2} \cdot 180$$
$$\boxed{= 90\, ft^2}$$

Find the area of each triangle. SHOW ALL WORK! Are the areas the same? EXPLAIN.

11) a)

6 mm
12 mm

$$A = \tfrac{1}{2}bh$$
$$A = \tfrac{1}{2} \cdot 12 \cdot 6$$
$$= \tfrac{1}{2} \cdot 72$$
$$\boxed{= 36\, mm^2}$$

b)

12 mm
6 mm
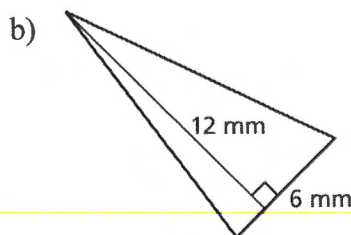
$$A = \tfrac{1}{2}bh$$
$$= \tfrac{1}{2} \cdot 6 \cdot 12$$
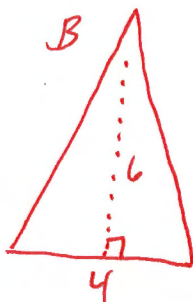$$= \tfrac{1}{2} \cdot 72$$
$$\boxed{= 36\, mm^2}$$

They are the same when you plug them in the formulas.

12) Triangle A and Triangle B have the same base. The height of Triangle B is twice the height of Triangle A. How many times greater is the area of Triangle B?

Example   A   B

(handwritten)
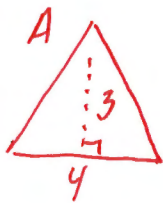
$A = \frac{1}{2}bh$
$= \frac{1}{2} \cdot 4 \cdot 3$
$= \frac{1}{2} \cdot 12$
$= 6 u^2$

$A = \frac{1}{2}bh$
$= \frac{1}{2} \cdot 4 \cdot 6$
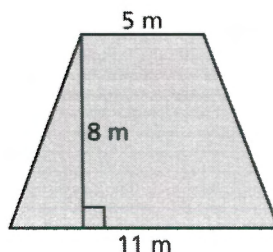$= \frac{1}{2} \cdot 24$
$= 12 u^2$

Two times greater

4.3 – Area of Trapezoids

Find the area of the trapezoids. SHOW ALL STEPS.

13) $b_1 = 10$, $b_2 = 7$, $h = 4$

$A = \frac{1}{2}(b_1 + b_2)h$
$= \frac{1}{2}(10 + 7)4$
$= \frac{1}{2}(17)4$
$= \frac{1}{2} \cdot 68$
$= 34 \ units^2$

14)

5 m
8 m
11 m

$A = \frac{1}{2}(b_1 + b_2)h$
$= \frac{1}{2}(5 + 11)8$
$= \frac{1}{2}(16)8$
$= \frac{1}{2} \cdot 128$
$= 64 m^2$

15) Describe and correct the error in finding the area of the trapezoid.

The bases should be added, not multiplied.

2 m
3 m
6 m

$A = \frac{1}{2}(3)(2)(6) = 18 \text{ m}^2$

$A = \frac{1}{2}(b_1 + b_2)h$
$= \frac{1}{2}(2 + 6)3$
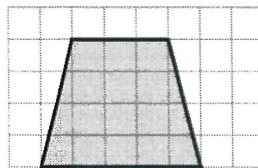$= \frac{1}{2}(8) \cdot 3$
$= \frac{1}{2} \cdot 24$
$= 12 \ m^2$

Find the area of the trapezoids. SHOW ALL STEPS.

16)
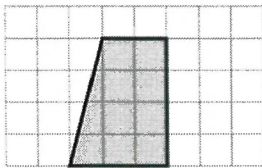
$A = \frac{1}{2}(b_1 + b_2)h$

$= \frac{1}{2}(2+3)4$

$= \frac{1}{2}(5)4$

$= \frac{1}{2} \cdot 20$

$= \boxed{10 \text{ unit}^2}$

17)

$A = \frac{1}{2}(b_1 + b_2)h$

$= \frac{1}{2}(3+5)4$

$= \frac{1}{2}(8)4$

$= \frac{1}{2} \cdot 32$

$= \boxed{16 \text{ units}^2}$

18) The triangle and the trapezoid have the same area. What is the length ℓ of the triangle?

7 cm

ℓ

$A = \frac{1}{2} \cdot \ell \cdot 7$

$77 = \frac{1}{2} \cdot \ell \cdot 7$

$\boxed{\ell = 22 \text{ cm}}$

10 cm

7 cm

12 cm
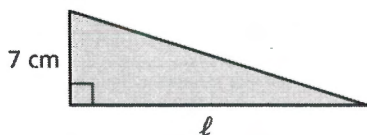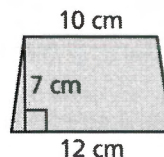
$A = \frac{1}{2}(b_1 + b_2)h$

$= \frac{1}{2}(10 + 12)7$

$= \frac{1}{2}(22)7$

$= \frac{1}{2} \cdot 154$

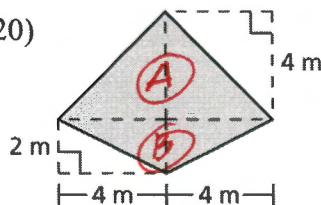$= 77 \text{ cm}^2$

4.3 EXT – Area of Composite Figures

Find the area of the figures. SHOW ALL STEPS.

19)

2 ft

7 ft

10 ft

Ⓐ

6 ft

Ⓑ

3 ft

6 ft

$Ⓐ = \frac{1}{2}(b_1 + b_2)h$ $Ⓑ = bh$

$= \frac{1}{2}(2+6)7$ $= 6 \cdot 3$

$= \frac{1}{2}(8)7$ $= 18 \text{ ft}^2$

$= \frac{1}{2} \cdot 56$

$= 28 \text{ ft}^2$ Total $= 28 + 18$

$\boxed{= 46 \text{ ft}^2}$

20)

Ⓐ

Ⓑ

4 m

2 m

|— 4 m —|— 4 m —|

$Ⓐ = \frac{1}{2}bh$ $Ⓑ = \frac{1}{2}bh$

$= \frac{1}{2} \cdot 8 \cdot 4$ $= \frac{1}{2} \cdot 8 \cdot 2$

$= \frac{1}{2} \cdot 32$ $= \frac{1}{2} \cdot 16$

$= 16 \text{ m}^2$ $= 8 \text{ m}^2$

Total $= 16 + 8$

$\boxed{= 24 \text{ m}^2}$