Area 4.1 (KEY)
Geometry

Find the missing measure.

1) Trapezoid
b = 8 cm
b = 12 cm
h = 5 cm
Area =

$A = \frac{(b + b)h}{2}$

$A = \frac{(8\text{ cm} + 12\text{ cm})5\text{cm}}{2}$

$A = \frac{(20\text{ cm})5\text{cm}}{2}$

$A = 50\text{ cm}^2$

2) Triangle
b = 15 mm
h = 41 mm
Area =

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

$A = \frac{15\text{mm}(41\text{mm})}{2}$

$A = 307.5\text{ mm}^2$

3) Rectangle
b =
h = 34 ft
Area = 1,904 ft^2

$A = b \times h$

$\frac{1{,}904\text{ ft}^2}{34\text{ ft}} = \frac{b\ (34\text{ ft})}{34\text{ ft}}$

56 ft = b

4) Trapezoid
b = 16 in
b = 21 in
h = 18 in
Area =

$A = \frac{(b + b)h}{2}$

$A = \frac{(16\text{ in} + 21\text{ in})18\text{ in}}{2}$

$A = \frac{(37\text{ in})18\text{ in}}{2}$

$A = 333\text{ in}^2$

5) Trapezoid
b = 10 mm
b = 16 mm
h =
Area = 117 mm^2

$A = \frac{(b + b)h}{2}$

$(2)117\text{ mm}^2 = \frac{(10\text{ mm} + 16\text{ mm})h}{2}(2)$

$\frac{234\text{ mm}^2}{(26\text{mm})} = \frac{(26\text{mm})h}{(26\text{mm})}$

9 mm = h

6) Triangle
b = 17 dm
h = 10 dm
Area = 85 dm^2

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

7) Parallelogram
b = 75 km
h = 64 km
Area = 4800 km^2

$A = b \times h$

8) Trapezoid
b = 4 m
b = 11 m
h =
Area = 105m^2

$A = \frac{(b + b)h}{2}$

$(2)105\text{m}^2 = \frac{(4\text{m} + 11\text{m})h}{2}(2)$

$\frac{210\text{ m}^2}{(15\text{m})} = \frac{(15\text{m})\ h}{(15\text{m})}$

14 m = h

9) Circle
radius = 5 in
diameter = 5 in(2) = 10 in

Circum. = 10π in
= 31.4 in

Area =
$A = \pi r^2$
$A = \pi\ (5\text{ in})^2$
$A = 25\pi\text{ in}^2$
$A = 78.5\text{ in}^2$

10) Circle
radius = 39 mm
diameter = 78 mm

Circum. = 78π mm

Area =
$A = \pi r^2$
$A = \pi(39\text{ mm})^2$
$A = 1{,}521\ \pi\text{ mm}^2$
$A = 4{,}778.4\text{ mm}^2$

11) Circle
radius = 24.7 m
diameter = 49.3 m

Circum. = 155 m

Area =
$A = \pi r^2$
$A = \pi\ (24.7\text{ m})^2$
$A = 610.1\pi\text{ m}^2$
$A = 1{,}916.7\text{ in}^2$

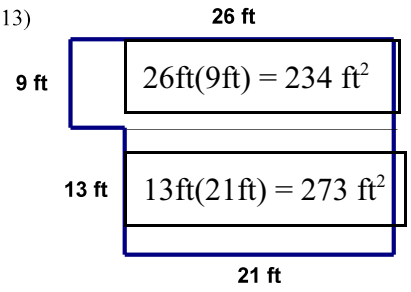
12) Circle
radius = 5.5 ft
diameter = 5.5 ft(2)
=11ft

Circum. = 11π ft
= 34.6 ft

Area = 94 ft^2
$A = \pi r^2$
$\frac{94\text{ ft}^2}{\pi} = \frac{\pi r^2}{\pi}$
$\sqrt{29.9\text{ ft}^2} = \sqrt{r^2}$
5.5 ft = r

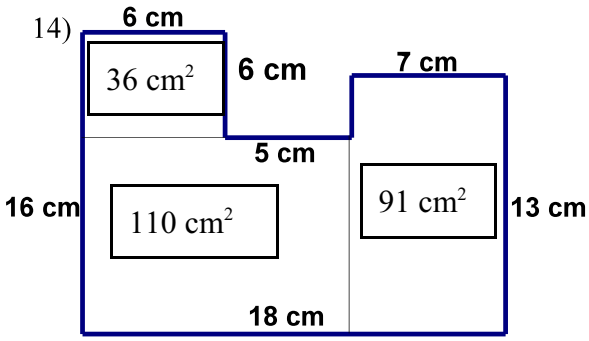
Find the area of each figure.

13)



54 ft^2
$+ 273 \text{ ft}^2$
$= 507 \text{ ft}^2$

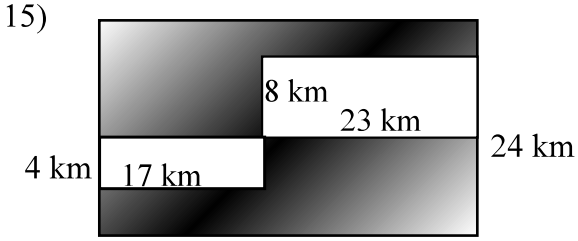
14)



$36 \text{ cm}^2 + 110 \text{ cm}^2 + 91 \text{ cm}^2 = 237 \text{ cm}^2$

Find the area of the shaded region.

15)



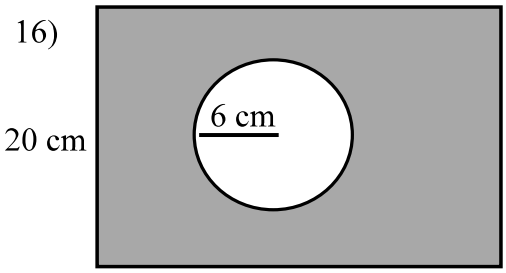
Whole shape = (24 km)(40 km) = 960 km^2

Non- shaded #1 = (4km)(17km) = 68 km^2

Non-shaded #2 = (8km)(23 km) = 184 km^2

Shaded = $960 \text{ km}^2 - 68 \text{ km}^2 - 184 \text{ km}^2 = 708 \text{ km}^2$

16)



Whole shape = (27 cm)(20 cm) = 540 cm^2

Non-shaded = $A = \pi r^2 = A = \pi (6 \text{ cm})^2$
$A = 36\pi \text{ cm}^2$
$A = 113.1 \text{ cm}^2$

Shaded = $540 - 113.1 = 426.9 \text{ cm}^2$

Madison is having her front room floor carpeted. The dimensions of her front room are 6 yds by 7 yds.

17) What is the area of the floor?

(7 yd)(6 yd) = 42 yd^2

18) How much carpet will she need to purchase to cover the floor?

42 yd^2

19) How much will Madison's carpet cost at \$10/yd ²?

$42 \text{ yd}^2(\$10/\text{yd}^2) = \$420$

20) How much will she spend if each square yard costs \$23?

$42 \text{ yd}^2(\$23/\text{yd}^2) = \$966$

Janice is tiling a floor. The dimensions of the floor are 16 ft. by 12 ft. The tiles measure 6 in. by 6 in..

21) What are the dimensions of the floor in inches?

144 in x 192 in

22) What is the area of the floor?

$27{,}648 \text{ in}^2$

23) What is the area of each tile?

36 in^2

24) How many tiles will Janice need to cover the floor? What question helps you find this?

$36\overline{)27,648} = 768 \text{ tiles}$ How many 36 in^2 tiles fit into a $27{,}648 \text{ in}^2$ floor?

25) What will Janice spend for the tiles if they cost \$.30 each? 768 tiles(\$0.30) = \$230.4

26) What will she spend if each tile costs \$.46?

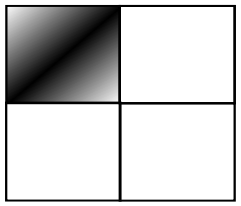
768 tiles(\$0.46) = \$353.28

27) If a chimpanzee throws a dart at dartboard A, what is the probability that he will hit the colored square?

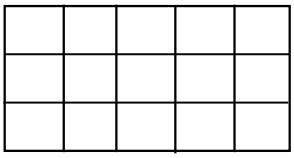
$$\frac{1}{4} = .25 = 25\%$$

28) If the chimp throws the dart at dartboard B, what is the probability that he will hit the middle column?

A



B



$$\frac{1}{5} = .2 = 20\%$$

29) And if the chimp throws at dartboard B, what is the probability he will hit the top or bottom row?

$$\frac{2}{3} = .67 = 67\%$$

30) Workers lay a 15 ft x 20 ft concrete slap which will serve as a floor for a shop. What is the probability that a bird will land in a marked 5 ft x 5 ft square on the slab? What is the probability the bird will land in a marked 10 ft x 10 ft square?

$$\frac{5\,ft(5\,ft)}{15\,ft(20\,ft)} = \frac{25\,ft^2}{300\,ft^2} = .08 = 8\% \qquad \frac{10\,ft(10\,ft)}{15\,ft(20\,ft)} = \frac{100\,ft^2}{300\,ft^2} = .33 = 33\%$$

31) A delivery man drives a truck with a windshield that is 30 in. x 60 in. A car in front of him kicks up a rock that is coming toward the windshield. What is the probability that the rock will hit the 6in. x 6 in. square directly in front of the driver's eyes? What is the probability that the rock hits a 12 in. x 15 in. square directly in front of the passenger's eyes?

$$\frac{6in(6in)}{30in(60in)} = \frac{36in^2}{1{,}800in^2} = .02 = 2\% \qquad \frac{12in(15in)}{30in(60in)} = \frac{180in^2}{1{,}800in^2} = .1 = 10\%$$