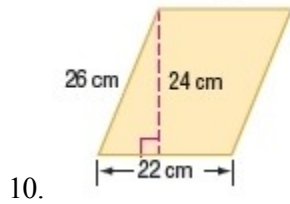


11-1 Areas of Parallelograms and Triangles

ORGANIZE IDEAS Find the perimeter and area of each parallelogram or triangle. Round to the nearest tenth if necessary.



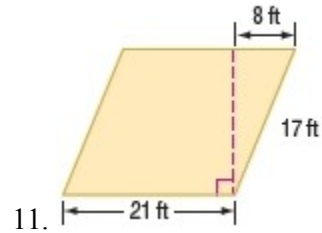
SOLUTION:

$$\begin{aligned} A &= bh \\ &= 22(24) \\ &= 528 \end{aligned}$$

$$\begin{aligned} P &= 2(26 + 22) \\ &= 2(48) \\ &= 96 \end{aligned}$$

ANSWER:

$$96 \text{ cm}, 528 \text{ cm}^2$$



SOLUTION:

Use the Pythagorean Theorem to find the height h , of the parallelogram.

$$\begin{aligned} a^2 + b^2 &= c^2 \\ 8^2 + h^2 &= 17^2 \\ h^2 &= 17^2 - 8^2 \\ h^2 &= 289 - 64 \\ h &= \sqrt{225} \\ h &= 15 \end{aligned}$$

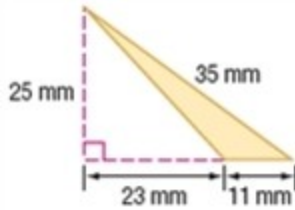
$$\begin{aligned} A &= bh \\ &= 21(15) \\ &= 315 \end{aligned}$$

$$\begin{aligned} P &= 2(21 + 17) \\ &= 2(38) \\ &= 76 \end{aligned}$$

ANSWER:

$$76 \text{ ft}, 315 \text{ ft}^2$$

11-1 Areas of Parallelograms and Triangles



12.

SOLUTION:

$$\begin{aligned} A &= \frac{1}{2}bh \\ &= \frac{1}{2}(11)(25) \\ &= 137.5 \end{aligned}$$

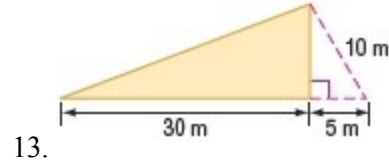
Use the Pythagorean Theorem to find the length of the third side of the triangle.

$$\begin{aligned} a^2 + b^2 &= c^2 \\ 25^2 + 23^2 &= c^2 \\ 625 + 529 &= c^2 \\ \sqrt{1154} &= c \\ 34 &\approx c \end{aligned}$$

The perimeter is about $35 + 11 + 34$ or 80 mm.

ANSWER:

80 mm, 137.5 mm²



13.

SOLUTION:

Use the Pythagorean Theorem to find the height h of the triangle.

$$\begin{aligned} a^2 + b^2 &= c^2 \\ 5^2 + h^2 &= 10^2 \\ h^2 &= 10^2 - 5^2 \\ h^2 &= 100 - 25 \\ h &= \sqrt{75} \\ h &= 5\sqrt{3} \end{aligned}$$

$$\begin{aligned} A &= \frac{1}{2}bh \\ &= \frac{1}{2}(30)(5\sqrt{3}) \\ &= 75\sqrt{3} \\ &\approx 129.9 \end{aligned}$$

Use the Pythagorean Theorem to find the length of the third side of the triangle.

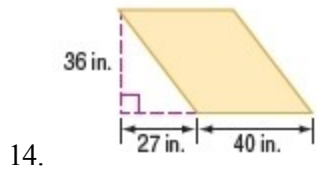
$$\begin{aligned} a^2 + b^2 &= c^2 \\ 30^2 + (\sqrt{75})^2 &= c^2 \\ 900 + 75 &= c^2 \\ \sqrt{975} &= c \\ 31.2 &\approx c \end{aligned}$$

The perimeter is about $8.7 + 30 + 31.2 = 69.9$ m.

ANSWER:

69.9 m, 129.9 m²

11-1 Areas of Parallelograms and Triangles



SOLUTION:

$$\begin{aligned} A &= bh \\ &= 40(36) \\ &= 1440 \end{aligned}$$

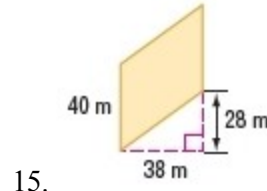
Use the Pythagorean Theorem to find the length of the other pair of opposite sides of the parallelogram.

$$\begin{aligned} a^2 + b^2 &= c^2 \\ 36^2 + 27^2 &= c^2 \\ 1296 + 729 &= c^2 \\ \sqrt{2025} &= c \\ 45 &= c \end{aligned}$$

The perimeter is $2(40 + 45) = 170$

ANSWER:

170 in., 1440 in²



15.

SOLUTION:

$$\begin{aligned} A &= bh \\ &= 40(38) \\ &= 1520 \end{aligned}$$

Use the Pythagorean Theorem to find the length of the other pair of opposite sides of the parallelogram.

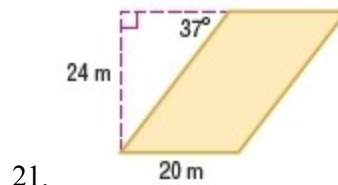
$$\begin{aligned} a^2 + b^2 &= c^2 \\ 38^2 + 28^2 &= c^2 \\ 1444 + 784 &= c^2 \\ \sqrt{2228} &= c \\ 47.2 &\approx c \end{aligned}$$

The perimeter is about $2(40 + 47.2) = 174.4$.

ANSWER:

174.4 m, 1520 m²

ORGANIZE IDEAS Find the area of each parallelogram. Round to the nearest tenth if necessary.



21.

SOLUTION:

$$\begin{aligned} A &= bh \\ &= 20(24) \\ &= 480 \end{aligned}$$

ANSWER:

480 m²