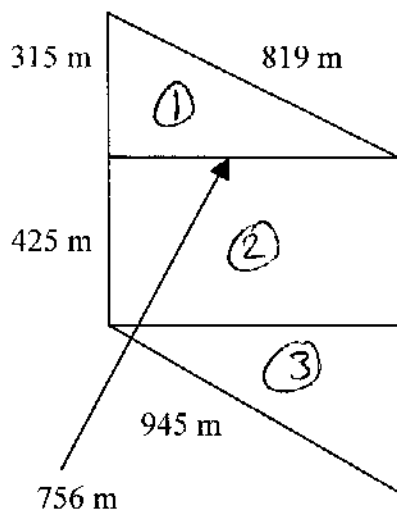


Agriculture
Perimeter & Area Worksheet

Name Key

Find the perimeter and areas of the following figures to the nearest tenth unless stated otherwise.

1. A farmer wants to fence a field for pasture. Barbed wire fencing costs \$1.48 per foot and woven wire fencing costs \$1.93 per foot. Determine how much it would cost to fence the pasture with barbed wire and also with woven wire fencing. The farmer wants to avoid overgrazing the pasture and plans to graze 1 steer for every 4 acres of land. How many steers should the farmer put in the pasture?



$$P = 315 + 425 + 945 + 567 + 425 + 819$$

$$P = 3490 \text{ m}$$

$$3490 \text{ m} \cdot \frac{3.281 \text{ ft}}{1 \text{ m}} = 11470.4 \text{ ft}$$

Will need 11471 ft of fencing

$$11471 \times \$1.48 = \$16,977.08 \text{ Barbed Wire}$$

$$11471 \times \$1.93 = \$22,139.03 \text{ Woven Wire}$$

$$A_1 = \frac{1}{2}bh \quad A_2 = lw \quad A_3 = \frac{1}{2}bh$$

$$A_1 = \frac{1}{2}(756)(315) \quad A_2 = (756)(425) \quad A_3 = \frac{1}{2}(756)(567)$$

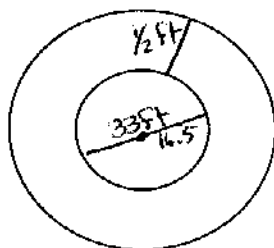
$$A_1 = 119070 \text{ m}^2 \quad A_2 = 321300 \text{ m}^2 \quad A_3 = 214326 \text{ m}^2$$

$$A = 119070 + 321300 + 214326 = 654696 \text{ m}^2$$

$$654696 \text{ m}^2 \cdot \frac{1 \text{ acre}}{4046.856 \text{ m}^2} = 161.8 \text{ acres}$$

$$161.8 \text{ acres} \cdot \frac{1 \text{ steer}}{4 \text{ acres}} = 40.5 \quad \boxed{40 \text{ steers}}$$

2. You want to place a cylindrical grain bin on a concrete pad. The diameter of the grain bin is 33 feet. You want 1/2 foot of concrete around the outside of the bin. What is the area of concrete not covered by the grain bin?



$$r_{\text{bin}} = 16.5 \text{ ft}$$

$$r_{\text{bin} + \text{concrete}} = 17 \text{ ft}$$

$$A_{\text{bin}} = \pi r^2$$

$$A_{\text{bin} + \text{c}} = \pi r^2$$

$$A = \pi (16.5)^2$$

$$A = \pi 17^2$$

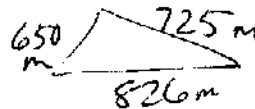
$$A = 855.3 \text{ ft}^2$$

$$A = 907.9 \text{ ft}^2$$

$$A = 907.9 - 855.3$$

$$\boxed{A = 52.6 \text{ ft}^2}$$

3. Find the area, in acres, of a triangular field with side lengths of 650 m, 725 m, and 826 m.



$$s = \frac{650 + 725 + 826}{2}$$

$$s = \frac{2201}{2}$$

$$s = 1100.5$$

$$A = \sqrt{s(s-a)(s-b)(s-c)}$$

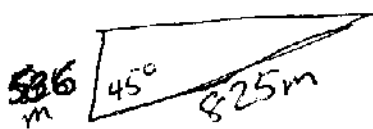
$$A = \sqrt{1100.5(1100.5-650)(1100.5-725)(1100.5-826)}$$

$$A = \sqrt{1100.5(450.5)(375.5)(274.5)}$$

$$A = 226057.3 \text{ m}^2$$

$$226057.3 \text{ m}^2 \cdot \frac{1 \text{ acre}}{4046.856 \text{ m}^2} = \boxed{55.9 \text{ acres}}$$

4. A field is triangular-shaped. Two adjacent sides of the field are 825 m and 536 m. The angle between the sides is 45° . To the nearest unit, find the area of the field in square feet. Find the number of acres.



$$A = \frac{1}{2} ab \sin C$$

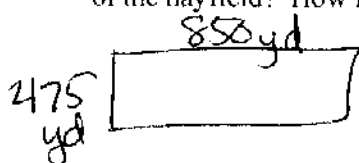
$$A = \frac{1}{2} (536)(825) \sin 45^\circ$$

$$A = 156341.3 \text{ m}^2$$

$$156341.3 \text{ m}^2 \cdot \frac{10.765 \text{ ft}^2}{1 \text{ m}^2} = \boxed{1683014.2 \text{ ft}^2}$$

$$156341.3 \text{ m}^2 \cdot \frac{1 \text{ acre}}{4046.856 \text{ m}^2} = \boxed{38.6 \text{ acres}}$$

5. A farmer has a rectangular hayfield measuring 850 yards by 475 yards. What is the perimeter and area of the hayfield? How many acres are the hayfield?



$$P = 850(2) + 475(2)$$

$$P = 2650 \text{ yd}$$

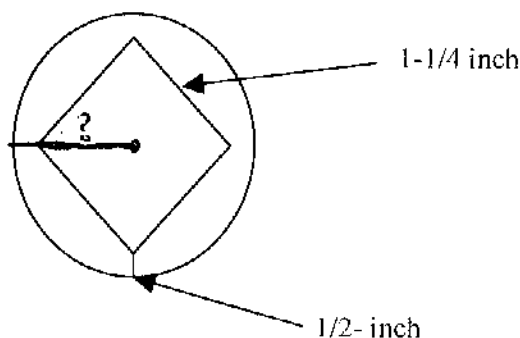
$$A = lw$$

$$A = 850(475)$$

$$A = 403750 \text{ yd}^2$$

$$403750 \text{ yd}^2 \cdot \frac{9 \text{ ft}^2}{1 \text{ yd}^2} \cdot \frac{1 \text{ acre}}{43560 \text{ ft}^2} = \boxed{83.4 \text{ acres}}$$

6. A square power-takeoff (PTO) shaft with $1\frac{1}{4}$ inch sides must be covered with a round guard that must have a $\frac{1}{2}$ -inch clearance at all points. What is the inside ~~area~~ of the guard?



Pythagorean Thm

$$c^2 = a^2 + b^2$$

$$x^2 = 1.25^2 + 1.25^2$$

$$\sqrt{x^2} = \sqrt{3.125}$$

$$x = 1.8$$

diameter of \odot

$$1.8 + \frac{1}{2} + \frac{1}{2} = 2.8 \text{ in}$$

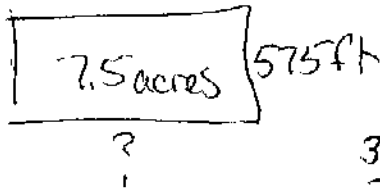
$$r = 1.4 \text{ in}$$

$$A_{\odot} = \pi r^2$$

$$A_{\odot} = \pi 1.4^2$$

$$\boxed{A_{\odot} = 6.2 \text{ in}^2}$$

7. A farmer wants to plant 7.5 acres of tomatoes in a rectangular field that is 575 feet wide. What should be the length of the rows?



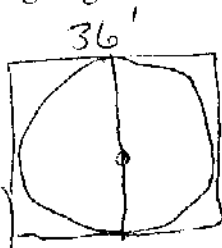
$$7.5 \text{ acres} \cdot \frac{43560 \text{ ft}^2}{1 \text{ acre}} = 326700 \text{ ft}^2$$

$$A = lw$$

$$\frac{326700}{575} = \frac{l \cdot 575}{575}$$

$$l = 568.2 \text{ ft}$$

8. A grain elevator wants to construct a circular grain bin on a square building site. If the site measures 36 ft x 36 ft and the grain bin can be built to the edge of the site, what is base area of the largest grain bin that can be constructed?



$$d_c = 36 \text{ ft}$$

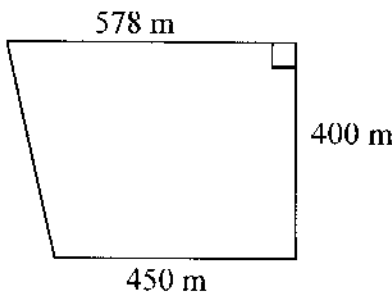
$$r = 18 \text{ ft}$$

$$A = \pi r^2$$

$$A = \pi 18^2$$

$$A = 1017.9 \text{ ft}^2$$

9. A field of sweet corn shown below measures 450 m along one outside row and 578 m along the other outside row. The rows measure 400 m. How many acres of sweet corn are in the field?



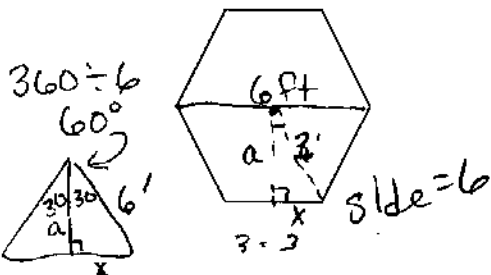
$$A = \frac{1}{2}(b_1 + b_2)h$$

$$A = \frac{1}{2}(578 + 450)(400)$$

$$A = 205600 \text{ m}^2$$

$$205600 \text{ m}^2 \cdot \frac{1 \text{ acre}}{4046.856 \text{ m}^2} = 50.8 \text{ acres}$$

10. A landscaper wants to make a hexagonal flower bed with a diameter of 6 feet. How many feet of edging will be needed to border the bed? What is the square footage of the bed?



$$P = 6 \cdot \text{side}$$

$$P = 6 \cdot 6$$

$$P = 36 \text{ ft}$$

$$A = \frac{1}{2} P a$$

$$A = \frac{1}{2}(36)(5.2)$$

$$A = 93.6 \text{ ft}^2$$

$$\cos 30 = \frac{a}{6}$$

$$\sin 30 = \frac{x}{6}$$

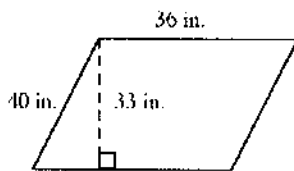
$$a = 6 \cos 30$$

$$x = 6 \sin 30$$

$$a = 5.2$$

$$x = 3$$

11. Find the perimeter and area of the figure.



$$P = 36 + 40 + 36 + 40$$

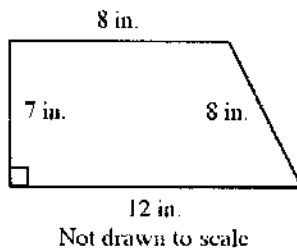
$$P = 152 \text{ in}$$

$$A = bh$$

$$A = 36(33)$$

$$A = 1188 \text{ in}^2$$

12. Find the perimeter and area of the figure.



$$P = 8 + 8 + 12 + 7$$

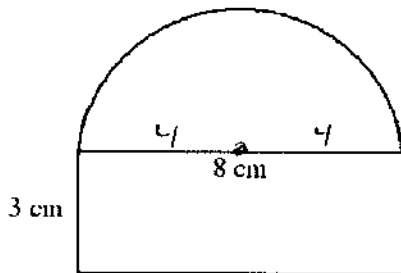
$$P = 35 \text{ in}$$

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

$$A = \frac{1}{2}(8 + 12)(7)$$

$$A = 70 \text{ in}^2$$

13. Find the area of the figure to the nearest square unit.



$$A_{\square} = lw$$

$$A_{\square} = 8 \cdot 3$$

$$A_{\square} = 24$$

$$A_{\circ} = \frac{1}{2}\pi r^2$$

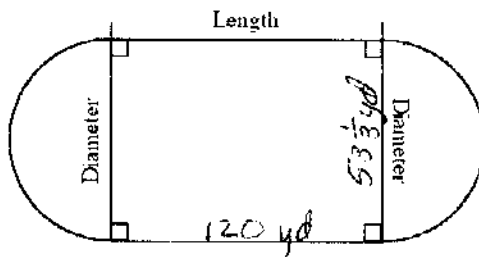
$$\frac{1}{2}\pi 4^2$$

$$A_{\circ} = 25.1$$

$$A = 24 + 25$$

$$A = 49 \text{ cm}^2$$

14. A high school football field is to be fertilized at a cost of \$.25 per square yard. The rectangular part of the field is 120 yards long and the diameter of each semicircle is $53\frac{1}{3}$ yards. Find the cost of fertilizing the field.



$$A_{\square} = lw$$

$$A_{\square} = 120(53\frac{1}{3})$$

$$A_{\square} = 6400 \text{ yd}^2$$

$$A_{\circ} = \pi r^2$$

$$A_{\circ} = \pi(26\frac{2}{3})^2$$

$$A_{\circ} = 2234.0 \text{ yd}^2$$

$$A = 8634 \text{ yd}^2$$

$$8634 \text{ yd}^2 \times \$0.25 = \$2158.50$$