

Solutions and Answers

Page	Problem	Answer	Solution
3	1	\$18.00	
	2	yes; \$7.50	
	3	\$146.35 more	
	4	\$14.90	
	5	\$202,500	
	6	\$160	Estimation
	7	\$160,000	Estimation
5	1	1,760 pieces	$5280/3$
	2	a) 52.65 sq. in.	a) $(37 \times 37)/2$ <u>or</u> $(37 \times 18.5) = 684.5$ sq. in. $684.5/13 = 52.65$ sq. inches
		b) 2.74 miles per square foot	b) $(12 \times 12) = 144$ sq. in. or 1 sq. ft. $684.5/144 = 4.75$ sq. ft. $13/4.75 = 2.7368$
	3	3,267 pieces	$99/3 = 33$; $33 \times 99 = 3,267$
	4	480 pieces	$(5 \times 3 \times 8 \times 4) = 480$
	5	1,992 pieces	$2(6 \times 3 \times 8 \times 4) + 2(4 \times 3 \times 8 \times 4)$ $+ (6 \times 12) = 1,992$
	6	21' x 21' x 8' with 3' walls	$2(9 \times 3 \times 8 \times 4) + 2(7 \times 3 \times 8 \times 4)$ $+ (9 \times 27) = 3,315$ <small>[The outside dimensions would be 27' x 27'. You could think of the walls as two 27' x 3' x 8' walls and two 21' x 3' x 8' walls.]</small>
		24' x 21' x 7' with 3' walls	$2(10 \times 3 \times 7 \times 4) + 2(7 \times 3 \times 7 \times 4)$ $+ (10 \times 27) = 3,126$
		30' x 30' x 8' with 2' walls	$2(12 \times 2 \times 8 \times 4) + 2(10 \times 2 \times 8 \times 4)$ $+ (12 \times 36) = 3,248$
		36' x 30' x 7' with 2' walls	$2(14 \times 2 \times 7 \times 4) + 2(10 \times 2 \times 7 \times 4)$ $+ (14 \times 30) = 3,108$

Page	Problem	Answer	Solution
5	7	a) 70.5 lbs.	1 cubic ft = (12" x 12" x 12") = 1728 cubic inches 12" x 36" x 3" = 1296 cubic inches 1296/1728 = .75 cubic foot 94 x .75 = 70.5
		b) 140,436 lbs. 70.2 tons	1,992 x 70.5 = 140,436 140,436/2000 = 70.218
7	1	b) 4 times	
	2	Answers will vary	
	3	110 hours	(5280/4) x 5 = 6600; 6600/60 = 110
	4	a) 979 feet	(2 x 3.14 x 50) + (2 X 3.14 X 52) + (2 X 3.14 X 54) = 979
		b) 2,083 feet	50 + (2 x 3.14 x 106) + (2 x 3.14 x 108) +(2 x 3.14 x 110) = 50 + 665 + 678 + 690 = 2,083
	c) 3,138 feet	50 + (2 x 3.14 x 162) + (2 x 3.14 x 164) + (2 x 3.14 x 166) = 50 + 1017 + 1029 + 1042	
5	a) 625 hills	[(100 - 2 - 2)/4] + 1 = 25; 25 x 25 = 625	
	b) 2500 kernels	625 x 4 = 2500	
9	2	50 days	2000/40
	3	14 hours 25 min.	
	4	a) 1 hour 39 min.	66.25/40 = 1.65 hrs.; .65 x 60 = 39 min.
		b) 9 hrs. 41 min.	38.75/4 = 9.68 hrs.; .68 x 60 = 40.8 min.
	5	13,200 pounds or 6.6 tons	220 x 60 = 13,200; 13,200/2000 = 6.6
	6	2.8 tons	(50 x 2)(56) = 5600; 5600/2000 = 2.8
	7	1.125 acres	45/40 = 1.125
	8	60' x 100'	1825/60 = 30.4 bushels; 30.4/220 = .138 acres 43,560 x .138 = 6,011 sq. ft.; 6,000/100 = 60
	9	a) 7.9 or 8 miles	(2 x 3.14 x 14) = 87.9'; 87.9 x 4 = 351.6' (351)(60 x 2) = 42,120'; 42,120/5280 = 7.97
		b) 15 minutes	5280/351 = 15.04

Page	Problem	Answer	Solution
11	1	a) 25 postholes b) 220 lbs.	$2/.08 = 25$ $2/18 = .11; 2,000 \times .11 = 220$
	2	six trips	$2,000/350 = 5.7$
	3	answers will vary depending on decimal places used	$(2 \times 3.14 \times 20)/12 = 10.46'$ $5280/10.46 = 504.78$ revolutions $(2 \times 3.14 \times 22)/12 = 11.5'$ $52890/11.5 = 459$ revolutions $505-459 = 46$ more times
	4	a) \$12.50	$2.5 \times 5 = 12.5$
	5	answers will vary	one possibility: $2.00/.05 = 40$ (5¢) $1.40/.10 = 14$ (10¢)
	6	13 days	$26/2 = 13$
	7	13 bushels	$(52 \times 15)/60 = 13$
13	1	\$.43	$.10 + .05 + (.06 \times 3) + .05 + .05 = .43$
	2	\$.004	$.25/60 = .004$
	3	\$12.00	$.20 \times 60 = 12$
	4	48 bushels	$12/.25 = 48$
	5	200 eggs	$.06/12 = .005; 1.00/.005 = 200$ or done mentally
	6	6 weeks @ 50¢ 4 weeks @ 75¢	$2.60/.50 = 5.2$ $2.60/.75 = 3.46$
	7	1 1/4 days	$45/40 = 1.25$

There are alternative ways to doing many of the problems. Students should be encouraged to figure the problems out in their own way.