

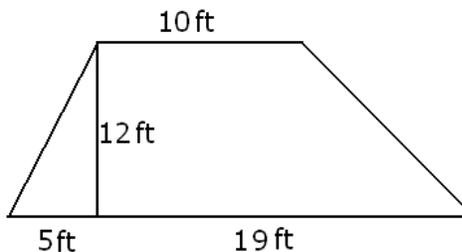
## Review Problems

- We wish to buy a used car for \$5000. The dealership has a finance plan of \$500 down payment and 36 monthly payments with an APR of 6%. Find the monthly payment under this plan.
- We wish to buy a used car for \$7500. The dealership has a finance plan of \$500 down payment and 48 monthly payments of \$161.20. Find the APR that the bank charges.

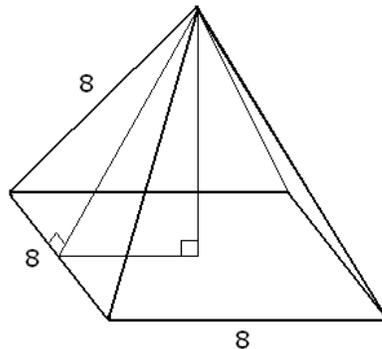
months	4%	4.5%	5%	5.5%	6%	6.5%	7%	7.5%	8%	8.5%	9%
6	1.17	1.32	1.46	1.61	1.76	1.90	2.05	2.20	2.35	2.49	2.64
12	2.18	2.45	2.73	3.00	3.28	3.56	3.83	4.11	4.39	4.66	4.94
18	3.20	3.60	4.00	4.41	4.82	5.22	5.63	6.04	6.45	6.86	7.28
24	4.22	4.75	5.29	5.83	6.37	6.91	7.45	8.00	8.54	9.09	9.64
30	5.25	5.92	6.59	7.26	7.94	8.61	9.30	9.98	10.66	11.35	12.04
36	6.29	7.09	7.90	8.71	9.52	10.34	11.16	11.98	12.81	13.64	14.48
48	8.38	9.46	10.54	11.63	12.73	13.83	14.94	16.06	17.18	18.31	19.45
60	10.50	11.86	13.23	14.61	16.00	17.40	18.81	20.23	21.66	23.10	24.55

- Consider a circle with radius 5 ft.
  - Find the circumference of the circle. Include units in your computation and answer.
  - Find the area of the circle. Include units in your computation and answer.
  - Find the volume of a cylinder that has this circle as its base and a height of 18 ft. Include units in your computation and answer.
  - Find the volume of a cone that has this circle as its base and a height of 18 ft. Include units in your computation and answer.
- We placed \$1000 in a bank account with an annual compound interest rate of 8%. How much money do we have in the bank after 15 years if the bank compounds
  - annually
  - monthly
  - daily
  - continuously
- A couple plans to have four children. What is the probability that they will have
  - three girls and a boy.
  - three or four boys.
- We throw a die twice. What is the probability that
  - the first number rolled is greater than the second one?
  - the sum of the two numbers rolled is even.
  - the product of the two numbers rolled is even.
- We randomly pull two numbers from  $\{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$ , with replacement. Find the probability that
  - The product of the two numbers pulled is even.
  - The sum of the two numbers pulled is 9.
  - The sum of the two numbers pulled is 12.

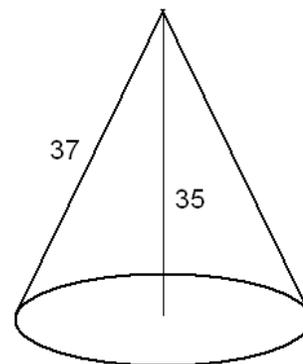
8. We randomly pull two numbers from  $\{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$ , with no replacement. Find the probability that
- The product of the two numbers pulled is even.
  - The sum of the two numbers pulled is 9.
  - The sum of the two numbers pulled is 12.
9. The supplement of an angle is  $4^\circ$  less than six times the angle. Find the angle.
10. There are 14 marbles in a bag: 9 blue, 3 yellow, and 2 green. We randomly pull a marble. Find the probability for each of the following events.
- We pull a yellow marble.
  - We pull a marble that is yellow or green.
  - We pull a marble that is not green.
  - We pull a red marble
11. Consider the trapezoid shown on the picture below.



- Find the perimeter of the trapezoid. Include units in your computation and answer.
  - Find the area of the trapezoid. Include units in your computation and answer.
  - Find the volume of the solid that has this trapezoid as its base and a height of 15 ft.
  - Find the volume of the pyramid that has this trapezoid as its base and a height of 15 ft.
12. a) All sides of a pyramid are 8 cm long (see picture below). Compute the volume of the pyramid.
- b) Compute the volume of the cone shown on the picture below. Dimensions are in meters.

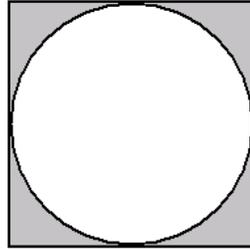


a)



b)

13. a) Consider the figure shown on the picture below. The square has sides 10 cm. We throw small objects at the figure. Provided that they all fall somewhere within the square, what is the probability that they land on the shaded area?



- b) Repeat part a) with a square with sides 18 feet long.
14. Consider a 3 by 8 grid. We randomly select a rectangle. What is the probability that the selected rectangle is a square?

### Answers

1.) \$136.90      2.) 5%

3.) a)  $C = 10\pi \text{ ft} \approx 31.41593 \text{ ft}$       b)  $A = 25\pi \text{ ft}^2 \approx 78.5398 \text{ ft}^2$   
 c)  $V = 450\pi \text{ ft}^3 \approx 1413.7167 \text{ ft}^3$       d)  $V = 150\pi \text{ ft}^3 \approx 471.2389 \text{ ft}^3$

4.) a) \$3172.17      b) \$3306.92      c) \$3319.67      d) \$3320.12

5.) a)  $\frac{1}{4}$       b)  $\frac{5}{16}$       6.) a)  $\frac{5}{12}$       b)  $\frac{1}{2}$       c)  $\frac{3}{4}$

7.) a)  $\frac{3}{4}$       b)  $\frac{2}{25}$       c)  $\frac{9}{100}$       8.) a)  $\frac{7}{9}$       b)  $\frac{4}{45}$       c)  $\frac{4}{45}$       9.)  $27^\circ$

10.) a)  $\frac{3}{14}$       b)  $\frac{5}{14}$       c)  $\frac{6}{7}$       d) 0

11.) a)  $P = 62 \text{ ft}$       b)  $A = 204 \text{ ft}^2$       c)  $V = 3060 \text{ ft}^3$       d)  $V = 1020 \text{ ft}^3$

12.) a)  $V = \frac{256}{3}\sqrt{2} \text{ cm}^3 \approx 120.67956 \text{ cm}^3$       b)  $V = 1680\pi \text{ m}^3 \approx 5277.87566 \text{ m}^3$

13.) a)  $P = \frac{(10 \text{ cm})^2 - 25\pi \text{ cm}^2}{(10 \text{ cm})^2} \approx 0.2146$       b)  $P = \frac{(18 \text{ ft})^2 - 81\pi \text{ ft}^2}{(18 \text{ ft})^2} \approx 0.2146$

14.)  $\frac{11}{54} \approx 0.203704$