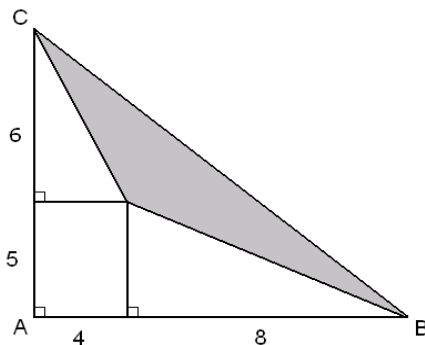


Review Problems

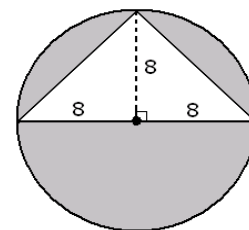
- Re-write $0.\overline{3250} = 0.3250250250\dots$ as a fraction of two integers.
- Round your answer to the nearest penny. Compute the present value of \$8000, two years from now. Assume an annual compound interest rate of 5%, compounded
 - annually
 - semi-annually
 - quarterly
 - monthly
 - daily
 - continuously
- Round your answer to the nearest penny. Find the exact value of three annual payments of \$2000, starting with the first payment right now. Assume an annual compound interest rate of 9%, compounded
 - annually
 - monthly
 - continuously
- Round your answer to the nearest penny. Find the exact value of three annual payments of \$2000, starting with the first payment a year from today. Assume an annual compound interest rate of 9%, compounded
 - annually
 - monthly
 - continuously
- We wish to buy a used car for \$6000. The dealership has a finance plan of \$1000 down payment and 24 monthly payments with an APR of 9%. Find the monthly payment under this plan.
- We wish to buy a used car for \$5000. The dealership has a finance plan of \$1500 down payment and 60 monthly payments of \$69.31. 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 the picture shown below. If we drop a small object on the figure shown, what is the probability that the object lands on the shaded area?

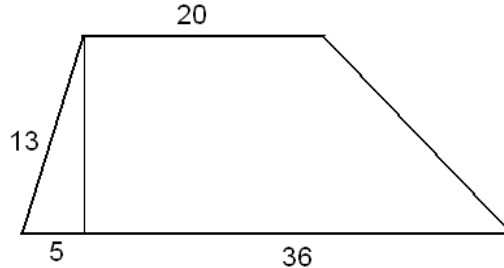


a)



b)

8. Consider the trapezoid shown on the picture below. Dimensionas are in meters.
- Compute the perimeter of the trapezoid. Include units in your computation and answer.
 - Compute the area of the trapezoid. Include units in your computation and answer.



9. Compute the volume of a cone with a base radius of 3 ft and height of 12 ft. Include units in your computation and answer.
10. There are 14 marbles in a bag: 9 blue, 3 yellow, and 2 green. We randomly pull two marbles Find the probability for each of the following events.
- We pull two yellow marbles. Assume
 - replacement
 - no replacement
 - We pull no yellow marbles. Assume
 - replacement
 - no replacement
 - We pull at least one yellow marble. Assume
 - replacement
 - no replacement
 - We pull a green marble first and then a blue one. Assume
 - replacement
 - no replacement
 - We pull a green and a blue marble, not necessarily in this order. Assume
 - replacement
 - no replacement
 - We pull two marbles of the same color. Assume
 - replacement
 - no replacement
 - We pull two marbles of different colors. Assume
 - replacement
 - no replacement
11. At each trial, the probability that a certain player scores a point, is 0.7. Find each of the following probabilities.
- The player tries once and fails.
 - The player tries twice and scores both times.
 - The player tries twice, scores for the first time and failes to score for the second time.
 - The player tries twice, failes to score for the first time and scores for the second time.
 - The player tries twice and failes to score both times.
 - The player tries three times and scores all three times.
 - The player tries three times and scores only at the second attempt.
 - The player tries three times and scores only once.

- i) The player tries five times and scores all five times.
 j) The player tries five times and scores four times.
12. We have 15 marbles in a bag, 10 blue, 3 red, and 2 yellow. We randomly pull two marbles, with replacement. Find the probability of each of the following events.
 a) We pull two marbles of different colors. b) We pull at least one blue marble.
13. We have 15 marbles in a bag, 10 blue, 3 red, and 2 yellow. We randomly pull two marbles, with no replacement. Find the probability of each of the following events.
 a) We pull two marbles of different colors. b) We pull at least one blue marble.

Review Problems - Answers

- 1.) $\frac{3247}{9990}$
- 2.) a) \$7256.24 b) \$7247.61 c) \$7243.19 d) \$7240.20 e) \$7238.75 f) \$7238.70
- 3.) a) \$5518.22 b) \$5500.14 c) 5498.40 4.) a) \$5062.59 b) \$5028.44 c) \$5025.16
- 5.) \$228.42 6.) 7% 7.) a) $\frac{7}{33}$ b) $\frac{\pi - 1}{\pi} \approx 0.68169$
- 8.) a) 93 m b) 366 m² 9.) $36\pi \text{ ft}^3 \approx 113.097336 \text{ ft}^3$
- 10.) a) i) $\frac{3}{14} \cdot \frac{3}{14} = \frac{9}{196}$ ii) $\frac{3}{14} \cdot \frac{2}{13} = \frac{3}{91}$ b) i) $\frac{11}{14} \cdot \frac{11}{14} = \frac{121}{196}$ ii) $\frac{11}{14} \cdot \frac{10}{13} = \frac{55}{91}$
 c) i) $1 - \frac{121}{196} = \frac{75}{196}$ ii) $1 - \frac{55}{91} = \frac{36}{91}$ d) i) $\frac{2}{14} \cdot \frac{9}{14} = \frac{9}{98}$ ii) $\frac{2}{14} \cdot \frac{9}{13} = \frac{9}{91}$
 e) i) $\frac{2}{14} \cdot \frac{9}{14} + \frac{9}{14} \cdot \frac{2}{14} = \frac{9}{49}$ ii) $\frac{2}{14} \cdot \frac{9}{13} + \frac{9}{14} \cdot \frac{2}{13} = \frac{18}{91}$
 f) i) $\frac{9}{14} \cdot \frac{9}{14} + \frac{3}{14} \cdot \frac{3}{14} + \frac{2}{14} \cdot \frac{2}{14} = \frac{47}{98}$ ii) $\frac{9}{14} \cdot \frac{8}{13} + \frac{3}{14} \cdot \frac{2}{13} + \frac{2}{14} \cdot \frac{1}{13} = \frac{40}{91}$
 g) i) $1 - \frac{47}{98} = \frac{51}{98}$ ii) $1 - \frac{40}{91} = \frac{51}{91}$
- 11.) a) 0.3 b) $\frac{7}{10} \cdot \frac{7}{10} = 0.49$ c) $\frac{7}{10} \cdot \frac{3}{10} = 0.21$ d) $\frac{3}{10} \cdot \frac{7}{10} = 0.21$
 e) $\frac{3}{10} \cdot \frac{3}{10} = 0.09$ f) $\frac{7}{10} \cdot \frac{7}{10} \cdot \frac{7}{10} = 0.343$ g) $\frac{3}{10} \cdot \frac{7}{10} \cdot \frac{3}{10} = 0.063$
 h) $3 \cdot \frac{3}{10} \cdot \frac{7}{10} \cdot \frac{3}{10} = 0.189$ i) $\left(\frac{7}{10}\right)^5 = 0.16807$ j) $5 \left(\frac{7}{10}\right)^4 \left(\frac{3}{10}\right) = 0.36015$
- 12.) a) $1 - \left(\frac{10}{15} \cdot \frac{10}{15} + \frac{3}{15} \cdot \frac{3}{15} + \frac{2}{15} \cdot \frac{2}{15}\right) = \frac{112}{225}$ b) $1 - \frac{5}{15} \cdot \frac{5}{15} = \frac{8}{9}$
- 13.) a) $1 - \left(\frac{10}{15} \cdot \frac{9}{14} + \frac{3}{15} \cdot \frac{2}{14} + \frac{2}{15} \cdot \frac{1}{14}\right) = \frac{8}{15}$ b) $1 - \frac{5}{15} \cdot \frac{4}{14} = \frac{19}{21}$