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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  |  | | --- | --- | --- | | **1** |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | |  |  | |  |  | |  |  | |  |  | | | Найдите расстояние между вершинами Aи D_1прямоугольного параллелепипеда, для которого AB=5, AD=4, AA_1=3. | | | http://mathege.ru/ROOT/images/spacer.gif | |
| http://mathege.ru/ROOT/images/spacer.gif |
| |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  |  | | --- | --- | --- | | **2** |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | |  |  | |  |  | |  |  | |  |  | | | В правильной шестиугольной призме ABCDEFA_1B_1C_1D_1E_1F_1все ребра равны 1. Найдите расстояние между точками Bи E. | | | http://mathege.ru/ROOT/images/spacer.gif | |
| http://mathege.ru/ROOT/images/spacer.gif |
| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  |  | | --- | --- | --- | | **3** |  |  |  |  | | --- | |  | | Найдите квадрат расстояния между вершинами Dи C_2многогранника, изображенного на рисунке. Все двугранные углы многогранника прямые.  b9_222.eps | | | http://mathege.ru/ROOT/images/spacer.gif | |
| http://mathege.ru/ROOT/images/spacer.gif |
| |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  |  | | --- | --- | --- | | **4** |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | |  |  | |  |  | |  |  | |  |  | | | Найдите квадрат расстояния между вершинами Bи D_2многогранника, изображенного на рисунке. Все двугранные углы многогранника прямые.  b9_228.eps | | | http://mathege.ru/ROOT/images/spacer.gif | |
| http://mathege.ru/ROOT/images/spacer.gif |
| |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  |  | | --- | --- | --- | | **5** |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | |  |  | |  |  | |  |  | |  |  | | | Найдите тангенс угла ABB_3многогранника, изображенного на рисунке. Все двугранные углы многогранника прямые.  b9_228.eps | | | http://mathege.ru/ROOT/images/spacer.gif | |
| http://mathege.ru/ROOT/images/spacer.gif |
| |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  |  | | --- | --- | --- | | **6** |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | |  |  | |  |  | |  |  | |  |  | | | Найдите угол EAD_2многогранника, изображенного на рисунке. Все двугранные углы многогранника прямые. Ответ дайте в градусах.  b9_234.eps |  |  |  |  | | --- | --- | --- | | **7** |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | |  |  | |  |  | |  |  | |  |  | | | В правильной четырехугольной пирамиде SABCDточка O — центр основания, Sвершина, SC=5, AC=6. Найдите длину отрезка SO. |  |  |  |  | | --- | --- | --- | | **8** |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | |  |  | |  |  | |  |  | |  |  | | | В правильной треугольной пирамиде SABCR — середина ребра BC, S — вершина. Известно, что AB=1, а SR=2. Найдите площадь боковой поверхности. | | | http://mathege.ru/ROOT/images/spacer.gif | |
| http://mathege.ru/ROOT/images/spacer.gif |
| |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  |  | | --- | --- | --- | | **9** |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | |  |  | |  |  | |  |  | |  |  | | | В правильной треугольной пирамиде SABCмедианы основания пересекаются в точке M. Площадь треугольника ABCравна 3, MS=1. Найдите объем пирамиды. | | | http://mathege.ru/ROOT/images/spacer.gif | | | http://mathege.ru/ROOT/images/spacer.gif | | http://mathege.ru/ROOT/images/spacer.gif |
| |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  |  | | --- | --- | --- | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | |  |  | |  |  | |  |  | |  |  | | | | | **10** |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | |  |  | |  |  | |  |  | |  |  | | | Высота конуса равна 4, а длина образующей — 5. Найдите диаметр основания конуса. | | | http://mathege.ru/ROOT/images/spacer.gif | |
| http://mathege.ru/ROOT/images/spacer.gif |
| |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  |  | | --- | --- | --- | | **11** |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | |  |  | |  |  | |  |  | |  |  | | | В кубе ABCDA_1B_1C_1D_1точка K — середина ребра AA_1, точка L — середина ребра A_1B_1, точка M — середина ребра A_1D_1. Найдите угол MLK. Ответ дайте в градусах. |  |  |  |  | | --- | --- | --- | | **12** |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | |  |  | |  |  | |  |  | |  |  | | | В прямоугольном параллелепипеде ABCDA_1B_1C_1D_1известны длины рёбер: AB=24, AD=10, AA_1=22. Найдите площадь сечения, проходящего через вершины A, A_1и C. | | | http://mathege.ru/ROOT/images/spacer.gif | | | http://mathege.ru/ROOT/images/spacer.gif | | http://mathege.ru/ROOT/images/spacer.gif |
| |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  |  | | --- | --- | --- | | **13** |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | |  |  | |  |  | |  |  | |  |  | | | Около конуса описана сфера (сфера содержит окружность основания конуса и его вершину). Центр сферы находится в центре основания конуса. Радиус сферы равен 28\sqrt{2}. Найдите образующую конуса. | | | http://mathege.ru/ROOT/images/spacer.gif | |
| http://mathege.ru/ROOT/images/spacer.gif |
| |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  |  | | --- | --- | --- | | **14** |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | |  |  | |  |  | |  |  | |  |  | | | В правильной треугольной призме ABCA_1B_1C_1, все ребра которой равны 3, найдите угол между прямыми AA_1и BC_1. Ответ дайте в градусах.  **15** |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | |  |  | |  |  | |  |  | |  |  | | | В правильной четырёхугольной призме ABCDA_1B_1C_1D_1известно, что AC_1=2BC. Найдите угол между диагоналями BD_1и CA_1. Ответ дайте в градусах. | | | http://mathege.ru/ROOT/images/spacer.gif | | | http://mathege.ru/ROOT/images/spacer.gif | | http://mathege.ru/ROOT/images/spacer.gif |