Representation en perspective cavaliere pdf

Benefits of representation in a cavalier point of view: This is very easy to do for conventional solids connected by flat faces. You can simply measure and calculate the real dimensions from the picture. Cons of submission in the cavalier point of view: This does not correspond and therefore does not lead to pleasant views for the eye, which disqualifies it for use where the aesthetics of the presentation count. This is why another perspective is used in works of art where the main goal is to draw the eye through the beauty of the work. However, there is still a recurring problem in both forms of perspective. Indeed, the main difficulty is to present 3 dimensions of reality on a plane has only two dimensions. That is why the discovery of perspective, which combines both aesthetics and realism, was belated and difficult for contemporaries of Italian Renaissance artists. ; ; ; ; PERSPECTIVE CAVALIER Chantal Perfetta, and collaboration Geraldine Holtzhauer's geometry in space goal college and high school programs to learn to see to learn to calculate and reason. This involves the widespread use of models, patterns, and views. The view of the object of the space is always ambiguous, as, on the one hand, a flat figure usually does not provide all the information needed to describe the object itself, and on the other hand, it can even be misleading (the angle may be right on the view until it is on the object itself). There are several perfectly codified view modes described by Mr. Audibert in the cavalier perspective, the main of which are views on industrial design, axonometric projections, cavalier perspectives, descriptive geometric purity, conical perspectives and listed projections. To represent the objects of space in college and high school is not used, that of the representations that certainly better gives the illusion of a real, like photography, conical point of view. The simplest, cavalry perspective is used, which is a compromise between the illusion of reality, ease of execution and preservation of a number of mathematical properties. It obeys a number of rules that teachers should keep in mind, even if they are rarely explained. In this regard, the programmes are extremely cautious: it seems that, if it is necessary to ensure that students any idea of the cavalier point of view seems to be excluded. What is a cavalier point of view? Either the P plane and the D straight, which is neither parallel nor perpendicular to this plane. The projection on P parallel to D is called a cavalier point of view. Thus, the cavalry representation of the object is its depiction of this projection. The properties of this projection you have deduced the relationship that exists between the characteristic elements of the object itself and the elements of its representation. Thus: Cavalier perspective retains alignment, parallelism, ratio of lengths of two parallel segments (especially it retains average) any figure contained in the plane parallel to P is represented in real size (segment lengths, measurements of angles) circles depending on the cases represented by segments, circles or ellipses. These properties can be highlighted by linking the cavalier representation of the object and the shadows on the plane of the object illuminated by the sun. It is difficult to draw this definition of a cavalier point of view, since one is then brought, as in the picture below, to represent the object from which you want to give the cavalier an idea using .... a cavalier point of view. Thus the abcdefgh appears as a representation of the ABCDEFGH cube cavalier, which itself is presented here with the perspective of the cavalier. Rules of drawing in the cavalry perspective Any figure contained in the front plane, that is parallel to the projection plan is presented in true size (given the scale). Perpendicular straight to the projection plane is represented by elusive straights that make a permanent angle with a horizontal projection plane called the flight angle of the projection. Any segment of the MN that is perpendicular to the projection plane is represented by the mn segment, over-marked by the fugitive, and the length of which mn checks mn-k MN, k is a constant, called reduction factor of the cavalier's point of view. The angle of flight and the reduction rate of the cavalry plan depend on the direction of the D, the direction of the projection, in relation to the projection plan P. Let's see later how to do it. Notes: Difficulties begin with the representation of a right that is neither parallel nor perpendicular to the projection plane. We then try to determine this right by two dots that can be seen on parallels or perpendicular to the projection plane. If this right is parallel to the right already represented, then one point is enough. Increase the illusion of reality and improve legibility Cavalier's presentation depicts hidden dotted pieces. Punctuation plays an important role in interpreting a promising drawing, as shown in the two drawings below. Two tetraedras are represented equally in dotted points. They are located differently in space. What is the reduction factor and the angle of the cavalier's flight prospects? The cavalier's perspective is fully determined by the perspective of the standard 1 orthogonal vector to the projection plan. The main oxyz orthonormal marker () is considered below. We'll borrow, and. Oxy's plan is supposed to be a projection plan. A is called a point A projection on Oxy. Thus, the right (AA') gives the direction of the projection. On the right (OA) turns into (OA') by this projection. Therefore, the angle of flight j is the angle.) In addition, the OAA triangle is a rectangle in O. We are tanned. So OA 'tan () x OA. If we call the reduction rate one has a tan (). Like here OA - 1 we have OA. In conclusion: l is a tangent that forms D with perpendicular to the projection plane. (j) is an angle that is made from a horizontal projection plane, a plane defined by D, and perpendicular to the projection plane. The impact of the flight angle and the reduction factor on the cavalier's view the next four shapes are cavalier representations of the same cube. We find that in the case when 1.5 and j - 20 degrees (called PC (1.5; 20 degrees)) you get a shocking effect of stretching for the eyes. It's hard to accept that it's a representation of a cube. That's why in practice we take the zlt; 1 (which implies obliquity D less than 45 degrees). If you get a label effect that, if less shocking to the eyes, impairs the legibility of the figure. In practice, it is taken at a range of 0.5; 0.8 and J at 30.60 euros. The most common options are PC perspectives (0.5; 60 degrees); PC (0.5; 45 degrees); PC (0.5; 30 degrees) and PC (; 45 degrees). The French Normalization Association (AFNOR) recommends PCs (0.5; 45) as the only cavalier point of view. The downside of this view is that it gives the fugitives the same direction as the diagonal of the front of the cube when it is parallel to the projection plane. It's convenient to use the PC perspective (0.5; 90 degrees) when you want to represent a round body. (see below) The effect of the position of the object on the view Two representations of the same cube: In both views, the flight angle is 45 degrees and the reduction factor 0.5. In one case, two edges of a cube are parallel to the projection plane. In another case, a plane formed by two parallel diagonals of two parallel bases is parallel to the projection plane. It is easier for students to recognize the cube in the first of two performances. Therefore, if the goal is to make a representation of the cube that best gives the illusion of reality, this view (first) will be privileged. Cavalier representation of round organs Of circle, cylinder, cone: 1st case: if the direction of the projection parallels the plane of the circle, the circle is then represented by a segment. In this case, the cylinder is represented by a parallelogram, and the cone - a triangle. Business 2: If the projection plane is parallel to the circle plane, the circle is represented in true size. In this case, the two bases of the cylinder are represented by real-sized circles. The same applies to the base of the cone. The third case: in other cases, the cavalier representation of the circle of the ellipse. First example of representation: PC (.90) 2nd example of representation: PC (,);); (90 degrees) The difficulty of drawing a round body image is to draw ellipses. Trail ellipse stencil is a tool for reproducing ellipses. View of the sphere Any cavalry representation of the sphere is an ellipse, as it is a section of the cylinder of the revolution, limited by the sphere and axis parallel to the projection direction, from the projection plane (which is oblique in relation to this axis). The view below (G. Audibert: Cavalier Perspective) is the representation of the sphere in the PC (0.5; 60). P and P' are two poles, is an obvious contour, the circle represents a meridian, located in a plane, parallel projection plane, e represents the equator, and the other ellipses are cavalier representations of the four parallels. However, when a person looks at the sphere, the person perceives it as the presence of a circular circuit. Again, the cavalier perspective gives an insight from reality. That is why very often one cheats and is a sphere with a clear circular contour. Supplement: Elements of the image of the cube, on the faces of which are written circles. This design is based on the use of affinity to turn a circle into an ellipse. Figures below from Cavalier Perspective (G.Audibert) Biliography: Audibert G., Cavalier Perspective, APMEP Paris 1990 Russellet M., Training Cavalier Point of View in College, Bulletin APMEP No. 406 Bonafet F., Representation in Cavalier Perspective, APMEP Bulletin No. 363 Legrand. (coordinated), Teacher's profession. Mathematics in High and Secondary School, Hachette Education Spots IREM No 33, Learning Geometry in Space IREM No 4, Representation of Round Bodies representation en perspective cavaliere d'un pave droit. representation en perspective cavaliere pdf. representation en perspective cavaliere d'un prisme droit. les regles de la representation en perspective cavaliere