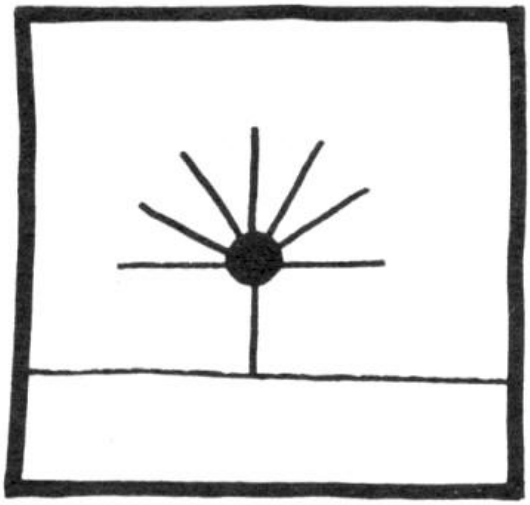
Droodle for Geometry Final Exam

A Puzzle by David Pleacher

Can you name this droodle?



Back in 1953, Roger Price invented a minor art form called the Droodle, which he described as "a borkley-looking sort of drawing that doesn't make any sense until you know the correct title." The droodle above was drawn by Roger Price and published in his book called, *Droodles*.

To determine the title to this droodle, you must first solve the 31 problems in the puzzle and find the corresponding answers. Then replace each numbered blank in the puzzle with the letter corresponding to the answer for that problem and that will give you the titles.

You probably thought the name of this droodle was “Total Eclipse of the Sun on a Stick” or “A Peace Pipe that can be smoked by Seven Indian Braves at the same time,” but the real titles for this droodle are:

Title 1:

__	__	__	__	__	__	__	__	__	__	__	__	__	__	.
25	8	20	24	14	28	13	22	23	22	12	7	30	18	

Title 2:

__ __ __ __ __ __ __ __ __ __ __ __
11 18 24 12 22 20 12 30 24 23 14 25

__ __ __ __ __ __ __ __ __ .
28 25 23 12 11 13 25 23 12

Title 3:

__ __
19 9 10 17 15 16 1 19 27 1 26 10 21 21 5 29 6 3

__ __ __ __ __ __ __ __ __ __ __ __ __ __ __ __ __ .
17 31 9 6 9 26 9 10 2 15 9 4 4 15 2

Here are the choices for your answers:

A. 1	B. 1.5	D. 2
E. 2π	F. 4 : 1	G. 4
H. $4\sqrt{2}$	I. 4.5	M. 5
N. $5\sqrt{2}$	O. (5, 2)	P. 6.3
R. $8\sqrt{3}$	S. $9\sqrt{3}$	T. 10
U. 16 : 1	a. $\sqrt{17}$	c. 18°
e. 19°	f. 20°	i. 30
k. 33°	l. 50	m. 60°
n. 66°	o. 75°	p. 76°
r. 100	s. 155°	t. 540°
u. 600	v. $x^2 + y^2 = 2$	w. $x^2 + y^2 = 4$
x. (3, 2)	y. (4a, 2b)	z. (2a, b)

___ 1. An angle's measure is five times the measure of its complement. Determine the angle's measure.

2 – 4. In parallelogram STEW, the measure of angle S = 4a°, the measure of angle T = (3b + 5) °, the measure of angle E = c°, and the measure of angle W = (8a – 48)°.

___ 2. Solve for a.

___ 3. Solve for b.

___ 4. Solve for c.

___ 5. If an exterior angle of a regular polygon measures 72°, what is the total measure of the interior angles of a polygon?

___ 6. The measures of the angles of a triangle are in the ratio 1:4:5. Determine the number of degrees in the smallest angle of the triangle.

___ 7. In triangle ABC, the measure of angle A = 40°, the measure of angle B = 70°, and AC = 5 inches. Determine the number of inches in the length of segment AB.

___ 8. The ratio of corresponding apothems of two regular pentagons is 4:1. What is the ratio of the perimeter of the larger pentagon to the perimeter of the smaller one?

___ 9. Express in radical form the distance between the points whose coordinates are (-1, 3) and (0, 7).

___ 10. Two parallel lines are cut by a transversal. A pair of interior angles on the same side of the transversal are represented by (x + 25)° and (3x + 15)°. Determine the number of degrees in the smaller angle.

___ 11. If the length of a side of an equilateral triangle is 6 units, express the area of the triangle in radical form in square units.

___ 12. The base angles of an isosceles triangle are each 45° and the bases are 6 inches and 10 inches. Determine the number of inches in the length of the altitude of the trapezoid.

___ 13. The legs of a right triangle measure 6 inches and 8 inches. Determine the number of inches in the length of the diameter of the circumscribed circle.

___ 14. Chords AB and CD intersect inside a circle at point E. If AE = 3, EB = 12, and CE = 9, determine the length of ED.

___ 15. Determine the area of a square whose diagonal is 10 feet. Give the answer in square feet.

___ 16. The coordinates of point A are (3a, b) and the coordinates of B are (5a, 3b). In terms of a and b, determine the coordinates of the midpoint of segment AB.

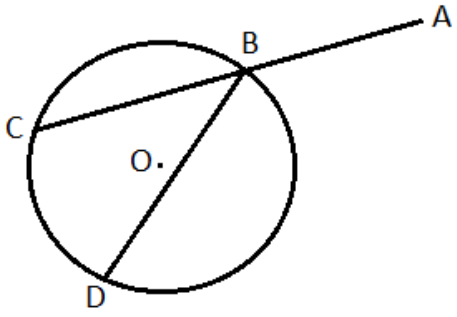
___ 17. If the circumference of a circle is 10π, what is the perimeter of a hexagon which is inscribed in this circle?

___ 18. In ΔABC, the measure of A = 52°, AC = 12 feet, and AB = 8 feet. Determine to the nearest tenth of a foot the length of the altiutude from B to AC.

___ 19. Two tangents to a circle from an external point form a 160° angle. Determine the number of degrees in the measure of the smaller of the two intercepted arcs of the circle.

___ 20. An isosceles triangle has congruent sides of length 8 inches. Each base angle measures 30°. Express in inches and in radical form the length of the third side.

___ 21. In the figure below, BD is a chord of circle O and ABC is a secant. If the measure of arc DC is 50°, determine the number of degrees in the measure of angle ABD.



___ 22. The radius of a circle is 4 inches. In terms of π, determine the number of square inches in the area of a sector of this circle whose angle measures 45°.

___ 23. In an isosceles right triangle, the length of one leg is 10 cm. Express in radical form the number of centimeters in the length of the altidude to the hypotenuse.

___ 24. In ΔABC, D is a point on side AC and E is a point on side BC such that DE ∥ AB. If CD = 6 inches, DA = 4 inches, and EB = 3inches, determine the number of inches in EC.

___ 25. Determine the number of points equidistant from two parallel lines and also equidistant from two points on one of the lines.

___ 26. If PA and PB are tangents drawn to circle O from point P and the number of degrees in the measure of angle AOP is 40, determine the number of degrees in the measure of angle APB.

___ 27. Determine the equation of a circle whose center is at the origin and which passes through the point (2, 0).

___ 28. The coordinates of the vertices of ΔABC are A (1, -2), B (2, 5), and C (-2, 1). Determine the length of the second longest side.

___ 29. If one side of a rhombus is 25 inches and the longer diagonal is 40 inches, determine the number of square inches in the area of the rhombus.

___ 30. If M is the midpoint of segment AB, and the coordinates of M are (1, -3) and the coordinates of A are (-3, -8), determine the coordinates of B.

___ 31. Solve for x in the diagram below: