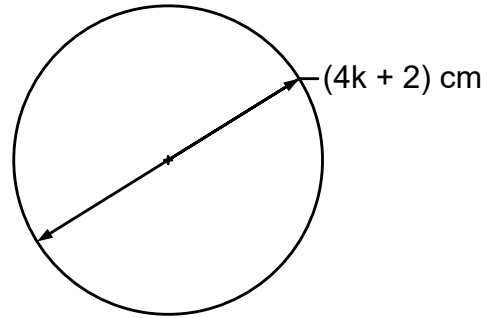


Expanding Brackets

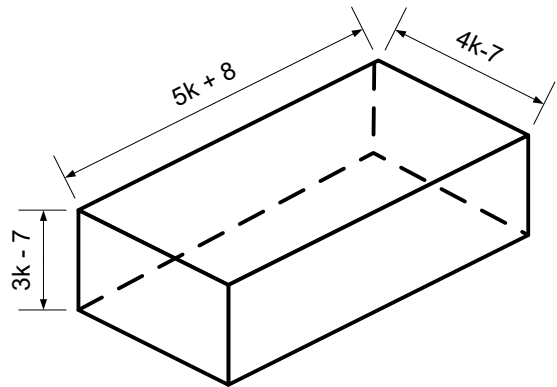
- $6(3x + 2) + 7(2 + 3) =$
- $2x(4x + 6) + 8(3x + 7) =$
- $5x(3x + 8) + 6(2x + 24) =$
- $3x(3x + 7) + 9(4x + 2) - x(3x + 4) =$
- $3x(4x+2)(8x-7) =$

Problems

- A circle has the diameter, $4k+2$ cm.
 - Find the circumference of the circle.
 - Find the area of the circle.
 - What would the diameter, circumference and area be if $k=12$ cm?



- Examine the cuboid to the right. Find:
 - the length of the edges;
 - the surface area;
 - the volume of the cuboid.
 - If $k=7$, find the above attributes of the cuboid.



- A ball has a radius of $3k+4$ cm.
 - Given that the surface area of the ball can be calculated using the formula $4\pi r^2$, find an exact expression for the surface area.
 - Given that the volume of a sphere can be calculated using the formula $\frac{4}{3}\pi r^3$, find the exact volume of the ball.

Proof

- Prove that $2n(4n+8) + 6n(4n+6) + 8n(3n-5)$ is divisible by 4.
- Is $(12n-2)(3n+8)(2n+5)$ divisible by 8?

Understanding the Question

A ball is placed in a box. The ball has a diameter of $8k+3$ cm. The box contains padding that holds the ball tight inside the box. The width of the box is 2cm longer than the ball is in every direction. What is the volume of the padding needed to ensure that the box is completely full with the ball and padding.