22. Evaluate each of these:

a) $1\frac{1}{4} - \frac{2}{5} \times 1\frac{3}{7}$ b) $\frac{5}{8} \div 2\frac{3}{4}$ c) $\frac{9}{10} + \frac{2}{5} \times 1\frac{2}{3}$ d) $5\frac{1}{4} \div 3\frac{3}{8}$

23. Three comets fly between 2 different planets.
The distances and speeds are shown here.

a) Planet A to Planet B. Distance = 4.75 x 10^{12} km. Speed = 5.13 x 10^{3} km/hr

b) Planet X to planet Y. Distance = 1.46 x 10^{26} km. Speed = 4.78 x 10^{7} km/hr

c) Planet P to Planet Q. Distance = 8.69 x 10^{22} km. Speed = 6.46 x 10^{9} km/hr

Calculate the time taken for each comet to reach its destination
Give your answers in scientific notation, correct to 3 significant figures.

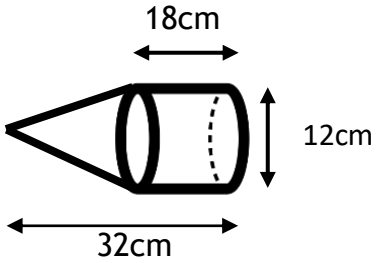
24. Solve each inequality:

a) $2(2x - 7) > 3(3x + 2)$ b) $5 + 3(2 - x) > 3 - x$ c) $2a - 11 \geq 5a - 2$

25. Find the equations of the lines passing through each pair of points:

a) (3,-2) ; (1,5) b) (-4,5) ; (-5,6) c) (2,-5) ; (7,1) d) (3,3) ; (-1,6)

26. Find the volume of the shape below, consisting of a cylinder and a cone.



27. Expand each pair of brackets and simplify:

a) $(2x - 3)(2x - 5) + 2(x + 5)$ b) $(2x + 3)(x - 4)^2$ c). $(x + 4)^3$

28. A straight line passes through the points (a,2) and (5,a).
The gradient of this line is equal to 2.

a) Calculate the value of a.
b) Find the equation of the straight line.