Question Bank of Mathematics class 9^{th} :

Q1: Consider the sequence whose nth terms:

U1=t1- s=1-1=0

U2=t2- s=2-1=1

U3=t3-s=3-1=2

1. Evaluate U4 and U5.
2. Express Un in terms of n.

Q2:a) A solid metallic cone with radius 6cm has a volume of 526 m^3. Calculate the height of the cone. (take π=3.142)

b) A right pyramid has a square base of sides 12 cm. Given that height of the pyramid is 37 cm, find the volume of the pyramid, giving your answer correct to 3 significant figures.

Q3: a) $Make\ x\ the\ subject\ of\ formula\ d = \frac{a+b}{cx}$

$b)\ If\ the\ slant\ height\ of\ the\ cone\ is\ 64\ cm\ and\ vertical\ angle\ is\ 58^{\circ}, calculate\ the\ radius\ of\ the\ cone.$

$Q4:\ a)\ how\ many\ hemispheres\ are\ there\ in\ 366\ spheres, a\ sphere\ radius\ is\ 4\ cm?$

$b)\ Find\ the\ surface\ area\ of\ the\ hemisphere\ given\ that\ the\ radius\ is\ 8.5\ cm.$

$$Q5: a)\ Simplify\ \frac{8^{\frac{1}{2}}}{128^{\frac{1}{4}}}$$

Q4:a)

$An\ iron\ rod\ has\ volume\ 1608cm^3. How\ many\ spherical\ balls\ of\ radius\ 4\ cm\ can\ be\ made\ from\ this\ rod?$

$$Q6: a)\ If\ y\ varies\ inversely\ as\ x\ and\ y = 10, when\ x = 6, express\ y\ terms\ of\ x.$$

$b)\ Simplify\ \ (a^3\ b^2\ )\ (a^{\frac{1}{2}}b^9)$ and express your answer in the radical form.

Q5:a) If $v^2 = \frac{2(E-mgh)}{m}$, find the value of V, when E=1000, m=5, g=15 and h=10.

b) Make w as the subject of the formula d=R-$\sqrt{Rw}$.

c) Given circle has a radius of 11cm. Take π = 3.142, calculate

i) The length of the minor arc AB.

ii) The area of the minor sector AOB.

Q6: F varies directly as V and inversely as the square of r, if F=1 and v=12 and r = 6

i) Express F in terms of V and r.

ii) Calculate the value of V when F=6 and r=2.

Q7: Find the area and perimeter of the shaded region (π =3.142)

outer diameter =4cm 

inner diameter=2cm

Q8: a) Express $\frac{5x}{x^2-4} - \frac{3(x+1)}{x^2+3x-10}$ as a single denominator.

b) Simplify: i) $\frac{7}{x} - \frac{5}{x^2-7x}$ ii) $\frac{a-5x}{3a-4x} = \frac{1}{3}$ (a)

Q9: Calculate the perimeter and area of the sector whose:

radius is 10 cm and arc length is 14 cm.

Q10: Solve the following:

i) $25^{1-3x} = 125^{x-1}$

ii) 4.67×10^3 (change into ordinary notation)

iii) $3^{x+1} = 27$

Q11: i) Solve: $2 + \frac{3x}{2} \leq \frac{5x+1}{3} \leq \frac{3x+11}{2}$

ii) Smallest integer value: $3x + 5 > 24$

iii) $3 - 3x \leq 2 + 2x < 5x + 1$

iv) Given that $2 \leq x \leq 6$ and $-6 \leq y \leq -2$, find

a) The greatest possible value of $x^2 - y^2$

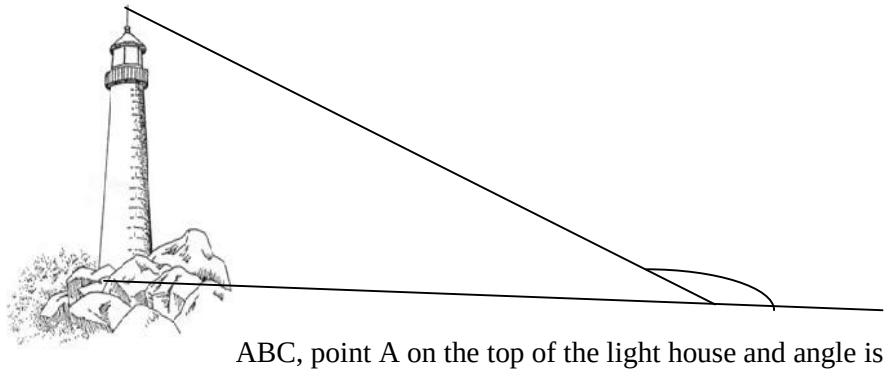
b) Smallest possible value of $x^2 - y^2$

c) Smallest value of xy.

d) The greatest possible value of $\frac{x}{y}$.

Q12: Is the triangle whose sides are 8cm, 6cm and 10cm a right angled triangle?

Q13: In the figure given below, what is the angle of depression? (if observed from point A)



ABC, point A on the top of the light house and angle is 162˚.