(1) (a) $y = (3)^x$

$x = 4$

$y = p$

$p = 3^4$

(b)

$y = mx + c$

$y = 3^x$

$y = x \ln 3$

$\ln 3 = 1.0986$

0.010986

(2) $a = 20$ p min d

a

a, ar, ar^2

$p = 20 r^{n-1}$

$p = 20 (1/2)^{n-1}$

b)

$S_{75} = 20r^{n-1}$

$20(\frac{1}{2})^{75-1} = 20(\frac{1}{2})^{n-1}$

$\frac{a(1-r^n)}{1-r} = \frac{20(1-\frac{1}{2}^{75})}{1-\frac{1}{2}}$

39.999

40 bacteria

c) $163840 = \frac{20(1-\frac{1}{2}^n)}{1-\frac{1}{2}}$

$0.5 \times 163840 = 20(1-\frac{1}{2}^n) \times 0.5$

$81920 = 20 - 10^n$

$81900 = 10^n$

$\frac{n\log 10}{\log 10} = \frac{\log 81900}{\log 10} = 4.913$

5hrs

(3) $\left(64a^8b^4\right)^{1/2} \div \left(16a^{12}b^{-4}\right)^{5/4}$

$\left(2^6a^8b^4\right)^{1/2} \div \left(2^4a^{12}b^{-4}\right)^{5/4}$

$2^3a^4b^2 \div \left(2a^3b^{-1}\right)^5$

$\frac{2^3a^4b^2}{2^5a^{15}b^{-5}} =$

$2^{3-5}\,a^{4-15}\,b^{2+5}$

$2^{-2}\,a^{-11}\,b^7$

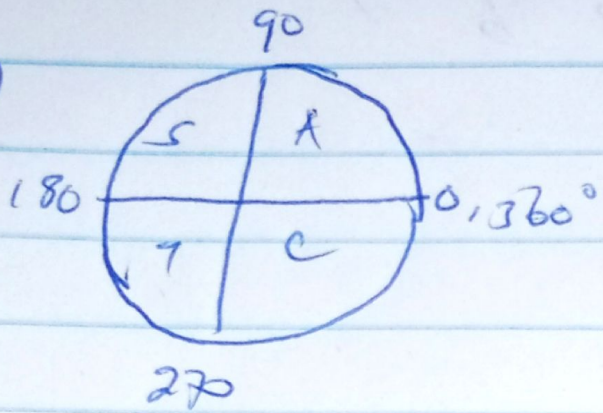
$\frac{b^7}{a^2a^{11}}$

4 a) $P(\beta, -2)$ $\quad 0^\circ \leq \theta \leq 360^\circ$

$(90 - 2)$

$(90^\circ - \theta^\circ)$

b)



30°

~~csc~~ $= \frac{H}{~~A~~}$ secant

$\cot = \frac{A}{O}$ cotangent