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QUADRATICS

Section A: Factor each quadratic. If the quadratic cannot be factored, write "prime."

1. $x^2 - x - 2$

$(x-2)(x+1)$

2. $x^2 + 3x - 4$

$(x+4)(x-1)$

3. $8x^2 - 50y^2$

$2(4x^2 - 25y^2)$

$2(2x+5y)(2x-5y)$

4. $3x^2 - 5x + 2$

$2 \cdot 3 = 6$

$6 \mid -5$

$-6, 1$

$-3, -2$

$3x^2 - 3x - 2x + 2$

$3x(x-1) - 2(x-1)$

$(3x-2)(x-1)$

5. $2x^2 - x - 6$

$-12 \mid -1$

$-4, 3$

$2x^2 - 4x + 3x - 6$

$2x(x-2) + 3(x-2)$

$(2x+3)(x-2)$

6. $x^3 - 3x^2 - 18x$

$x(x^2 - 3x - 18)$

$x(x-6)(x+3)$

Section B: Solve each equation using any method except graphing or guess and check.

1. $x^2 + 25 = 10x$

$x^2 - 10x + 25 = 0$

$(x-5)(x-5) = 0$

$x - 5 = 0 \quad x - 5 = 0$

$x = 5$

2. $x^2 + 3x - 1 = 0$

won't factor!

$a = 1 \quad b = 3 \quad c = -1$

$$\frac{-3 \pm \sqrt{(3)^2 - 4(1)(-1)}}{2(1)}$$

$$\frac{-3 \pm \sqrt{9+4}}{2} = \frac{-3 \pm \sqrt{13}}{2} \approx 0.303, -3.30$$

3. $x + \frac{12}{x} = 7$

$x^2 + 12 = 7x$

$x^2 - 7x + 12 = 0$

$(x-4)(x-3) = 0$

$x = 4 \quad x = 3$

4. $x^2 + 2 = 9$

$x^2 = 7$

$x = \pm\sqrt{7}$

$x \approx \pm 2.65$

5. $x^2 - 5x = 0$

$x(x-5) = 0$

$x = 0 \quad x - 5 = 0$

$x = 5$

6. $36x^2 - 25 = 0$

$(6x+5)(6x-5) = 0$

$6x + 5 = 0 \quad 6x - 5 = 0$

$x = -5/6 \quad x = 5/6$

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Section C: State the following for each of the given equations: axis of symmetry, vertex, direction of opening, x-intercepts, and y-intercepts. Then sketch the graph using that information.

1. $y = -2(x+2)(x-1)$

opens down $(a=-2)$

x-int: $x+2=0$ $x-1=0$

$x=-2, 1$

y-int: $-2(0+2)(0-1)=y$

$y=4$

Axis/vertex:

$y=-2(x^2+x-2)$

$y=-2x^2-2x+4$

axis $x=\frac{-(-2)}{2(-2)}=\frac{2}{-4}$

$x=-1/2$

vertex: $y=-2(-1/2)^2-2(-1/2)+4$

$(-1/2, 4.5)$

2. $y = 0.5(x-2)^2 - 4$

opens up $(a=0.5)$

vertex: $(2, -4)$

axis: $x=2$

y-int:

$0.5(0-2)^2-4$

$y=-2$

x-int:

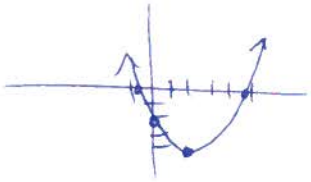
$0=0.5(x-2)^2-4$

$4=0.5(x-2)^2$

$8=(x-2)^2$

$x-2=\sqrt{8}$ $x-2=-\sqrt{8}$

$x=4.83, -0.828$



3. $y = 2x^2 + 6x - 3$

opens up $(a=2)$

axis: $x=\frac{-6}{2(2)}=-\frac{6}{4}$

$x=-3/2$

vertex: $2(-3/2)^2+6(-3/2)-3$

$(-3/2, -7.5)$

y-int

$y=2(0)^2+6(0)-3$

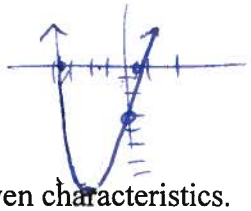
$y=-3$

x-int:

$0=2x^2+6x-3$

QF $x \approx .436$

$x \approx -3.44$



Section D: Find the values of p such that the equations below have the given characteristics.
Hint: Use the discriminant. b^2-4ac

1. Two different real roots

$px^2+5x+2=0$

$D>0$ $a=p$ $b=5$ $c=2$

$5^2-4(p)(2)>0$

$25-8p>0$

$-8p>-25$

$p<25/8$

or $p<3.125$

2. Two equal real roots

$2x^2-3x+p=0$

$D=0$ $a=2$ $b=-3$ $c=p$

$(-3)^2-4(2)(p)=0$

$9-8p=0$

$-8p=-9$

$p=9/8$

or $p=1.125$

3. No real roots

$px^2-4px+5-p=0$

$D<0$ $a=p$ $b=-4p$ $c=5-p$

$(-4p)^2-4(p)(5-p)<0$

$16p^2-20p+4p^2<0$

$20p^2-20p<0$

$20p(p-1)<0$

$20p<0$ $p-1>0$ or $20p>0$ $p-1<0$

$p<0$ and $p>1$ no solution

$p>0$ and $p<1$

Section E: Use your graphing calculator to find the following

1. Solve $3x^2-x-5=0$

$x=-1.14, x=1.47$

2. Intersection points of $y=-x^2-5x+3$ and $y=x^2+3x+11$

$(-2, 9)$

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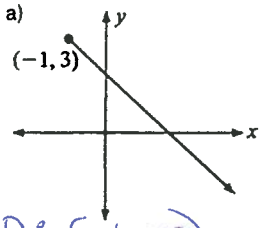
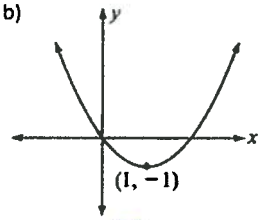
FUNCTIONS

Section A: For each of the following find the domain and range without using a calculator.

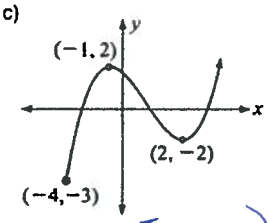
1.

a) 

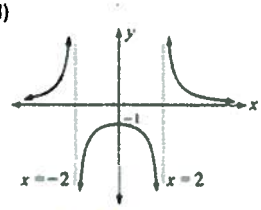
D: $[-1, \infty)$
R: $(-\infty, 3]$

b) 

D: $\mathbb{R}$ or $(-\infty, \infty)$
R: $y \geq -1$ or $[-1, \infty)$

c) 

D: $[-4, \infty)$
R: $[-3, \infty)$

d) 

D: $\mathbb{R}$ $x \neq -2, 2$
R: $(0, \infty) \cup (-\infty, -1]$
or

2.

a) $f(x) = \sqrt{x}$

D: $[0, \infty)$ or $x \geq 0$
R: $[0, \infty)$ or $y \geq 0$

b) $f(x) = \sqrt{4 - x}$

$4 - x \geq 0$
$-x \geq -4$
$x \leq 4$
D: $(-\infty, 4]$
R: $[0, \infty)$

c) $y = 5x - 3x^2$

D: $\mathbb{R}$
Vertex: $x = \frac{-5}{2(-3)}$
$y = 5(5/6) - 3(5/6)^2$
$y = 2\ 1/2$
R: $(-\infty, 2\ 1/2]$

d) $y = \frac{x+4}{x-2}$

D: $\mathbb{R}$ $x \neq 2$
R: $\mathbb{R}$ $y \neq 1$

Section B: Find the inverse of each function.

1. $f(x) = 2x + 1$

$x = 2y + 1$
$x - 1 = 2y$
$\frac{x-1}{2} = y$ or $\frac{x-1}{2} = f^{-1}(x)$

2. $f(x) = \frac{x^2}{3}$

$x = \frac{y^2}{3}$
$3x = y^2$
$y = \pm\sqrt{3x}$

3. $g(x) = \frac{5}{x-2}$

$x = \frac{5}{y-2}$
$x(y-2) = 5$
$y - 2 = 5/x$
$y = \frac{5}{x} + 2$

4. $g(x) = \sqrt{4 - x} + 1$

$x = \sqrt{4-y} + 1$
$x - 1 = \sqrt{4-y}$
$(x-1)^2 = 4 - y$
$(x-1)^2 - 4 = -y$
$-(x-1)^2 + 4 = y$

5. If the point (2, 7) is on the graph of $f(x)$, what point must be on the graph of $f^{-1}(x)$?

(7, 2)

* all x's & y's are switched on inverses!

6. Explain, in complete sentences, the relationship between a function and its inverse.

reflection over the line $y = x$

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Section C: Let $f(x) = 2x^2 - 1$; $g(x) = 3x$ and $h(x) = 5 - x$. Find the following.

1. $f(-3)$

$2(-3)^2 - 1$

$2(9) - 1 = \boxed{17}$

2. $(f \circ g)(x)$

$2(3x)^2 - 1$

$2 \cdot 9x^2 - 1$

$\boxed{18x^2 - 1}$

3. $(h \circ f)(x)$

$5 - (2x^2 - 1)$

$5 - 2x^2 + 1$

$\boxed{-2x^2 + 6}$

4. $(f \circ h)(x + 1)$

$h(x+1) = 5 - (x+1) = 5 - x - 1$

$4 - x$

$f(4-x) = 2(4-x)^2 - 1$

$2(16 - 8x + x^2) - 1$

$32 - 16x + 2x^2 - 1 = \boxed{2x^2 - 16x + 31}$

5. $(g \circ h)(4)$

$h(4) = 5 - 4 = 1$

$g(1) = 3(1)$

$\boxed{3}$

6. $(f \circ f)(-1)$

$f(-1) = 2(-1)^2 - 1 = 1$

$f(1) = 2(1)^2 - 1$

$\boxed{1}$

Section D: Answer the following questions concerning equations of lines

1. What is the slope, x-intercept, and y-intercept of the equation $5x - 4y = 8$?

x-int: $5x - 4(0) = 8$

$5x = 8$

$\boxed{x = 8/5}$

y-int: $5(0) - 4y = 8$

$-4y = 8$

$\boxed{y = -2}$

Slope: $5x - 8 = 4y$

$5/4x - 2 = y$

$\boxed{m = 5/4}$

2. What is the slope-intercept form of the equation of the line between the points (4, 3) and (7, –2) ?

$m = \frac{3-(-2)}{4-7} = \frac{5}{-3}$

$m = -5/3$

$y - 3 = -5/3(x - 4)$

$y - 3 = -5/3x + 20/3$

$y = -5/3x + 20/3 + 9/3$

$\boxed{y = -\frac{5}{3}x + \frac{29}{3}}$

3. What is the slope-intercept form of a line perpendicular to $y = -2x + 9$ passing through the (4, 7) ?

$y = -2x + 9$

$m = -2$

$\perp m = 1/2$

$y - 7 = 1/2(x - 4)$

$y - 7 = 1/2x - 2$

$\boxed{y = 1/2x + 5}$

Section E: Find the horizontal & vertical asymptotes and holes (if applicable) of the following.

1. $y = \frac{1}{2x-5}$

VA: $2x - 5 = 0$

$x = 5/2$

HA: $y = 0$

2. $y = \frac{x^2-5}{2x^2-12}$

VA: $2x^2 - 12 = 0$

$2x^2 = 12$

$x^2 = 6$

$x = \pm\sqrt{6}$

HA: $y = 1/2$

3. $y = \frac{x^2+2x-3}{x^3+6x^2-7x} = \frac{(x+3)(x-1)}{x(x+7)(x-1)}$

Hole: $x - 1 = 0$

$x = 1$

VA: $x = 0$ $x + 7 = 0$

$x = -7$

HA: $y = 0$

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Section F: For each pair of functions $f(x)$ and $g(x)$, describe the transformations that would transform $f(x)$ into $g(x)$.

1. $f(x) = x^2$;
   $g(x) = (x-5)^2 + 2$

   right 5
   up 2

2. $f(x) = \sqrt{x}$;
   $g(x) = \sqrt{3x} - 10$

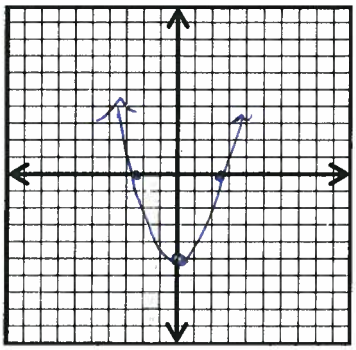
   Hor. compress 1/3
   Down 10

3. $f(x) = e^x$;
   $g(x) = -5(e)^{x-1}$

   Right 1
   Flip vertically over x-axis
   Ver. Stretch of 5

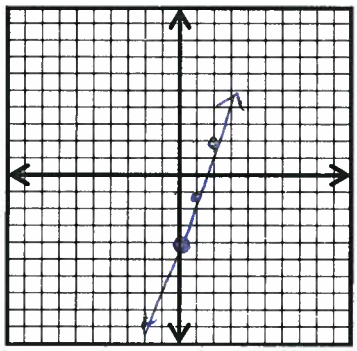
Section G: Graph each function, clearly showing its key features (maxima, minima, and intercepts). Identify its domain and range. (Remember: No calculator!)

1. $f(x) = x^2 - 5$



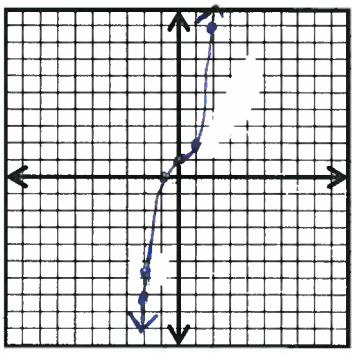
D: $\mathbb{R}$
R: $[-5, \infty)$

2. $f(x) = 3x - 4$



D: $\mathbb{R}$
R: $\mathbb{R}$

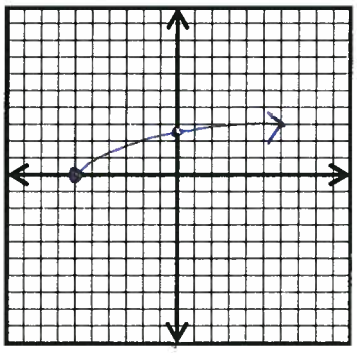
3. $f(x) = x^3 + 1$



x	y
-2	-7
-1	0
0	1
1	2
2	9

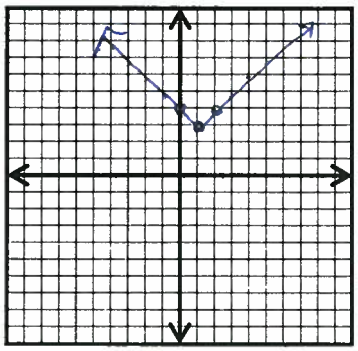
D: $\mathbb{R}$
R: $\mathbb{R}$

4. $f(x) = \sqrt{x+6}$



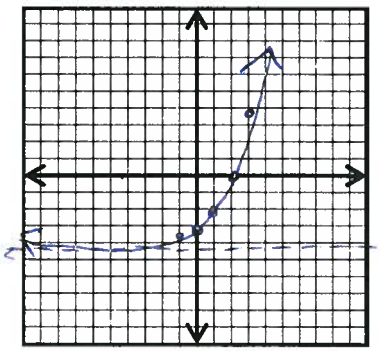
D: $[-6, \infty)$
R: $[0, \infty)$

5. $f(x) = |x-1| + 3$



D: $\mathbb{R}$
R: $[3, \infty)$

6. $f(x) = 2^x - 4$



x	y
-1	-3.5
0	-3
1	-2
2	0
3	4

D: $\mathbb{R}$
R: $(-4, \infty)$

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ALGEBRA

Section A: Simplify the following without a calculator.

1. $(2x^5)^{-3}$

$\frac{1}{(2x^5)^3} = \boxed{\frac{1}{8x^{15}}}$

2. $8^{2/3}$

$(\sqrt[3]{8})^2 = 2^2 = \boxed{4}$

3. $81^{-3/4}$

$\frac{1}{(\sqrt[4]{81})^3} = \frac{1}{3^3} = \boxed{\frac{1}{27}}$

4. $\sqrt[3]{16x^3}$

$= \sqrt[3]{8 \cdot 2x^3}$

$\boxed{2x\sqrt[3]{2}}$

5. $\sqrt{10x^2} \cdot \sqrt{70x^6}$

$\sqrt{700x^8}$

$\sqrt{100 \cdot 7x^8} = \boxed{10x^4\sqrt{7}}$

6. $\frac{\sqrt{72x^4}}{\sqrt{3x}}$

$= \sqrt{24x^3}$

$\sqrt{4 \cdot 6 \cdot x^2 x}$

$\boxed{2x\sqrt{6x}}$

7. $\frac{5}{7-\sqrt{5}} \cdot \frac{7+\sqrt{5}}{7+\sqrt{5}}$

$\frac{35+5\sqrt{5}}{49+7\sqrt{5}-7\sqrt{5}-5} = \boxed{\frac{35+5\sqrt{5}}{44}}$

8. $\sqrt{5} - 5\sqrt{125} - 7\sqrt{180}$

$\sqrt{5} - 5\sqrt{25 \cdot 5} - 7\sqrt{36 \cdot 5}$

$\sqrt{5} - 5 \cdot 5\sqrt{5} - 7 \cdot 6\sqrt{5}$

$1\sqrt{5} - 25\sqrt{5} - 42\sqrt{5}$

$\boxed{-66\sqrt{5}}$

Section B: Solve using algebra.

1. $3x + 7y = 36$
$x = 5y - 10$

$3(5y-10)+7y = 36$

$15y - 30 + 7y = 36$

$22y = 66$

$\boxed{y = 3}$

$x = 5(3) - 10$

$\boxed{x = 5}$

2. $6x + 10y = 32$
$4x - 2y = 4$

$6x + 10y = 32$

$20x - 10y = 20$

$26x = 52$

$\boxed{x = 2}$

$6(2) + 10y = 32$

$\boxed{y = 2}$

3. $x = y^2$
$x - y = 6$

$y^2 - y = 6$

$y^2 - y - 6 = 0$

$(y-3)(y+2) = 0$

$y = 3, y = -2$

$x = (3)^2$

$x = 9$ $\boxed{(9, 3)}$

$x = (-2)^2$

$x = 4$ $\boxed{(4, -2)}$

4. $x^2 + y^2 = 25$
$y = x^2 - 13$

$y + 13 = x^2$

$y + 13 + y^2 = 25$

$y^2 + y - 12 = 0$

$(y+4)(y-3) = 0$

$y = -4$ $y = 3$

$x^2 + (-4)^2 = 25$

$x = \pm 3$ $\boxed{(\pm 3, -4)}$

$x^2 + (3)^2 = 25$

$x = \pm 4$ $\boxed{(\pm 4, 3)}$

Section C: Solve for x. Eliminate any extraneous solutions, if any.

1. $\sqrt{37 - 3x} = x - 3$

$37 - 3x = x^2 - 6x + 9$

$0 = x^2 - 3x - 28$

$(x-7)(x+4) = 0$

$x = 7, x = -4$

$\boxed{x = 7}$

2. $-3(2x+1)^3 = -192$

$(2x+1)^3 = 64$

$2x + 1 = 4$

$2x = 3$

$\boxed{x = 3/2}$

3. $\frac{x}{3} - \frac{5}{2} = \frac{-3}{x} \Rightarrow \frac{2x}{6} - \frac{15}{6} = \frac{-3}{x}$

$\frac{2x-15}{6} = \frac{-3}{x}$

$2x^2 - 15x = -18$

$2x^2 - 15x + 18 = 0$

$(2x-3)(x-6)$

$\boxed{x = 3/2, x = 6}$

4. $\frac{4x-1}{x+1} = \frac{x-1}{1}$

$4x - 1 = x^2 - 1$

$0 = x^2 - 4x$

$0 = x(x-4)$

$\boxed{x = 0, x = 4}$

5. $2|3x - 1| + 5 = -2x + 8$

$2|3x-1| = -2x + 3$

$|3x-1| = -x + 3/2$

$3x - 1 = -x + 3/2$

$4x = 5/2$

$\boxed{x = 5/8}$

$3x - 1 = x - 3/2$

$2x = -1/2$

$\boxed{x = -1/4}$

6. $5(x-3) \leq 8(x+5)$

$5x - 15 \leq 8x + 40$

$-3x \leq 55$

$\boxed{x \geq -55/3}$

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SEQUENCES AND SERIES

Section A: Answer the following questions concerning arithmetic sequences and series.

1. Consider the sequence 87, 83, 79, 75… $u_1 = 87 \quad d = -4$

a) What is the formula for the general term u_n?

$u_n = 87 + (n-1)(-4)$

or

$u_n = 87 - 4n + 4$

$u_n = -4n + 91$

b) What is the 40th term?

$u_n = -4(40) + 91$

$u_n = -69$

c) Is –143 a member?

$-143 = -4n + 91$

$-234 = -4n$

$n = 58.5$

no!

d) What is the sum of the first 22 terms?

$S_{22} = \frac{n}{2}(2u_1 + (n-1)d)$

$= \frac{22}{2}(2(87) + (22-1)(-4))$

$S_{22} = 990$

2. A sequence is defined by $u_n = 3n - 2$

a) What is u_1 and d?

$u_1 = 3(1) - 2$

$u_1 = 1$

$u_2 = 3(2) - 2$

$u_2 = 4$

$d = 3$

b) What is the 57th term?

~~$u_n = 1 + (n-1)(3)$~~

~~$u_n = 1 + 3n - 3$~~

~~$u_n = 3n - 2$~~

$u_{57} = 3(57) - 2$

$u_{57} = 169$

c) What is the first term to exceed 450?

$450 = 3n - 2$

$452 = 3n$

$n = 150.\overline{6}$

#

u_{151}

d) What is the sum of the first 57 terms?

$S_{57} = \frac{n}{2}(u_1 + u_{57})$

$= \frac{57}{2}(1 + 169)$

$28.5(170)$

$S_{57} = 4845$

3) Find the general term u_n for an arithmetic sequence given that $u_7 = 41$ and $u_{13} = 77$.

(7, 41) (13, 77)

$d = m = \frac{41 - 77}{7 - 13}$

$= \frac{-36}{-6}$

$d = 6$

$u_n = u_1 + (n-1)d$

$u_7 = u_1 + (7-1)d$

$41 = u_1 + (7-1)(6)$

$u_1 = 5$

$u_n = 5 + (n-1)(6)$

$5 + 6n - 6$

$u_n = 6n - 1$

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Section B: Answer the following questions concerning arithmetic sequences and series.

1. Consider the sequence 12, –6, 3, –1.5, … $u_1 = 12 \quad r = -1/2$

a) What is the formula for the general term u_n?

$u_n = 12 \cdot (-1/2)^{n-1}$

b) What is the 13^{th} term?

$u_{13} = 12 \cdot (-1/2)^{13-1}$

$u_{13} = \frac{3}{1024}$

c) What is the sum of the first 10 terms?

$S_n = \frac{(12((-1/2)^{10} - 1))}{(-1/2 - 1)}$

$\frac{1023}{128}$

d) What is the infinite sum of the sequence'

Since $|r| < 1$ this is defined

$S_\infty = \frac{12}{(1-(-1/2))}$

8

2. Find the general term u_n for an geometric sequence given that $u_4 = 24$ and $u_7 = 192$.

24 ·r ·r ·r 192

$u_4 \quad u_5 \quad u_6 \quad u_7$

$24 \cdot r^3 = 192$

$r^3 = 8 \quad r = 2$

$u_4 = u_1 \cdot r^{4-1}$

$24 = u_1 \cdot (2)^3$

$u_1 = 3$

$u_n = 3 \cdot (2)^{n-1}$

3. In 1998 there were 3000 koalas on Koala Island. Since then, the population of koalas on the island has increased by 5% each year. How many koalas were on the island in 2001? In what year will the population first exceed 5000?

$u_1 = 3000$

$r = 1.05$ (↑105%)

$n = 4$

$u_4 = 3000(1.05)^{4-1}$

$u_4 = 3472.9$

3472 Koalas

$5000 = 3000(1.05)^{n-1}$

$5/3 = 1.05^{n-1}$

$\log(5/3) = (n-1)\log 1.05$

$\log(5/3) \div \log(1.05) = n-1$

$n = 11.5$ ~ during yr 11

2008

Section C: Find the following sums written in Sigma Notation.

1. $\sum_{r=1}^{4}(3r-5)$

$u_1 = 3(1)-5 = -2$

$u_2 = 3(2)-5 = 1$

$u_3 = 3(3)-5 = 4$

$u_4 = 3(4)-5 = 7$

Sum = 10

2. $\sum_{i=1}^{15} 50(0.8)^{i-1}$

$u_1 = 50(.8)^0 = 50$

$u_2 = 50(.8)^1 = 40$

$u_3 = 50(.8)^2 = 32$

Geometric Seq.

$u_1 = 50 \quad n = 15 \quad r = 0.8$

$\frac{(50((10.8)^{15} - 1))}{(0.8-1)}$

≈ 241.2

IB Math Standard Level Summer Assignment 2017

EXPONENTIAL AND LOGARITHMIC EQUATIONS

Section A: Find the following without using a calculator.

1.

a) $\log_4 64$ $4^x = 64$ → 3

b) $\log_2 1/4$ $2^x = 1/4$ → −2

c) $\log_8 1$ $8^x = 1$ → 0

d) $\log_9 3$ $9^x = 3$ → 1/2

e) $\log_m m^6$ $m^x = m^6$ → 6

f) $\ln(e^{2x})$ $e^? = e^{2x}$ → 2x

Section B: Solve each equation for x or y.

1. $7 = 5^x$

$\ln 7 = \ln 5^x$

$\ln 7 = x \ln 5$

$\frac{\ln 7}{\ln 5} = x$ → $x = 1.21$

2. $25e^{x/2} = 750$

$e^{x/2} = 30$

$\ln e^{x/2} = \ln 30$

$x/2 \ln e = \ln 30$ ($\ln e = 1$)

$x/2 = \ln 30$

$x = 2 \cdot \ln 30$

$x = 6.80$

3. $\log_2 y = 3$

$2^3 = y$

$y = 8$

4. $3 \ln x + 2 = 0$

$3 \ln x = -2$

$\ln x = -2/3$

$e^{-2/3} = x$

$x = .513$

5. $\log_2 y + \log_2 (y+1) = 1$

$\log_2 y(y+1) = 1$

$2^1 = y(y+1)$

$0 = y^2 + y - 2$

$(y+2)(y-1) = 0$

$y = -2$, $y = 1$

6. $4^y = 32$ (Solve without a calculator)

$2^{2(y)} = 2^5$

$2y = 5$

$y = 2.5$

Section C: Answer the following questions about the equation $W = 2500(3^{-t/3000})$ where W is the weight in gram of a radioactive substance after t years.

1. a) Find the initial weight
   b) Find the weight after 1500 years

a) $t = 0$ / 2500 grams

b) $t = 1500$

1443.4 grams

2. Find how many years it takes to reduce its value 30%

reduce 30% means 70% remains

initial = 2500

70% = 1750

$1750 = 2500(3^{-t/3000})$

$.7 = 3^{-t/3000}$

$\ln(.7) = -t/3000 \ln(3)$

$-.324\ldots = -t/3000$

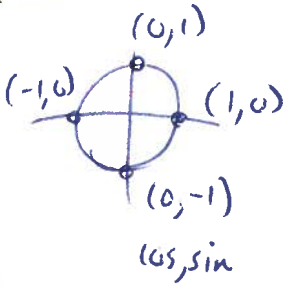
$t = 973.98$

973yrs

IB Math Standard Level Summer Assignment 2017

TRIGONOMETRIC FUNCTIONS

Section A: Find the exact value of each. ~~There is a blank unit circle at the end of your packet which you may fill in to help you~~. (Remember: No calculator!)



1. $\sin 60°$ $\sqrt{3}/2$

2. $\tan 90°$ $\frac{\sin 90}{\cos 90} = \frac{1}{0} =$ Undef.

3. $\sin \pi$ 0

4. $\tan\left(\frac{\pi}{3}\right)$ $\sqrt{3}$

5. $\cos\left(\frac{7\pi}{6}\right)$ S|A / T|C $-\sqrt{3}/2$

6. $\cos(-45°)$ S|A / T|C $\sqrt{2}/2$

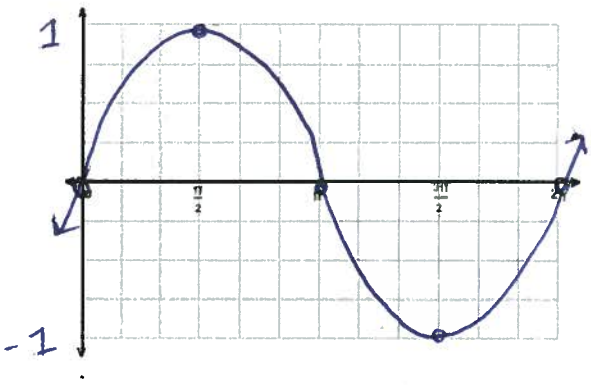
7. $\tan 135°$ S|A / T|C Ref 45° -1

8. $\cos 300°$ S|A / T|C Ref 60° $1/2$

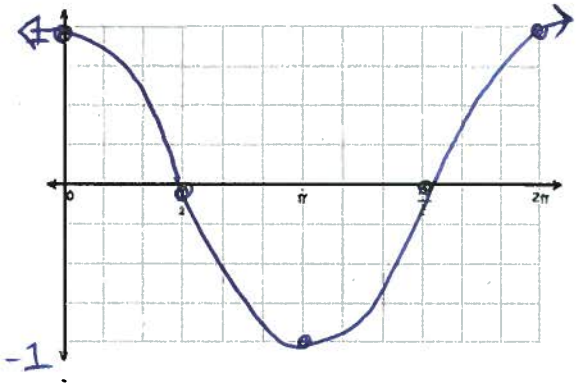
9. $\sin\left(\frac{4\pi}{3}\right)$ S|A / T|C $-\sqrt{3}/2$

Section B: Graph the functions below on the domain $0 \le x \le 2\pi$ (Remember: No calculator!)

1. $f(x) = \sin x$



2. $f(x) = \cos x$



Section C: Solve each trigonometric equation for $0 \le x \le 2\pi$.

1. $\sin x = -\frac{1}{2}$ S|A / T|C Ref $\pi/6$ $7\pi/6, 11\pi/6$

2. $2\cos x = \sqrt{3}$ $\cos x = \sqrt{3}/2$ S|A / T|C Ref $\pi/6$ $\pi/6, 11\pi/6$

3. $4\sin^2 x = 3$
*Recall: $\sin^2 x = (\sin x)^2$
$\sin^2 x = 3/4$
$\sin x = \pm\sqrt{3}/2$ S|A / T|C Ref $\pi/3$
$\pi/3, 2\pi/3, 4\pi/3, 5\pi/3$

4. $\tan x = 1$ S|A / T|C Ref $\pi/4$ $\pi/4, 5\pi/4$