1.) If , find x.

$$25^x = \frac{5^{x-2}}{3^{x+2}}$$

2.) Solve for in the equation .

3.) A computer screen saver displays a circle of radius of 2cm and enlarges it. What is the radius of the new circle if its area is four times the original?

4.) Factor completely: .

5.) Find the solution set of .

6.) If , find .

7.) Write as a single fraction in the lowest terms.

$$\frac{6x^2}{x^2-9} - \frac{3x}{x-3}$$

8.) Find so that the line passes through the point .

9.) In a game show, the winner spins a wheel to determine his prize. The prize wheel is divided into 5 equal wedges that are labeled Php10 000, Php15 000, Php20 000, Php25 000, and Php30 000. What is the probability that after spinning the wheel once, the winner gets at most Php 20,000?

10.) In an isosceles triangle, the length of each leg is 3cm. What is the length of the altitude to the hypotenuse of the triangle?

11. What is the slope of the line with x-intercept 5 and y-intercept ?

Average

1.) Write the expression in lowest terms with only positive exponents.

2.) Divide by and express the quotient in simplest form.

3.) Write an equation of the line that is parallel to and which passes through the point $latex (-2, 5)%.

4.) Factor completely: .

5.) In how many ways can a 6-digit PIN be formed if the first digit cannot be 0 and the last digit cannot be the same as the first digit?

6.) A BPO company employs full-time and part-time call center agents. Let be the number of full-time agents and let be the number of part-time agents that the company employs at any given time. From the volume of the calls received daily by the company and the average handle time of the agents, and must satisfy the inequality . If the company employs 75 full-time agent, how many part-time agents at most can the company hire?

Difficult

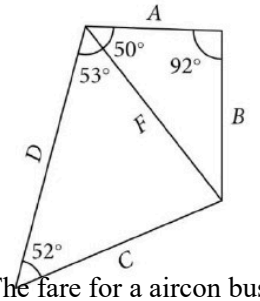
1.) A number is more than y and the number is more than . How many percent more than is ?

2.) The sum of $3^x$ and its reciprocal is $a$. What is the sum of $9^x$ and its reciprocal in terms of $a$?

3.) A car and a bus approach the same intersection from roads which are perpendicular. If the car averages 60kph and the bus 80kph, what is the distance between the car and the bus 12 minutes after they cross the intersection?

4.) A function f is defined on the set of positive integers as f(1) = 1, and for all integers $x > 2$, $f(x) = f(x-1) + f(x-2)$. Find $f(5)$.

5.) In the figure, angles and sides have measures as indicated but are not necessarily drawn to scale. Arrange ABCDE in increasing order.




6. The fare for a aircon bus in Metro Manila is computed as follows: Php11 for the first 5kilomters and Php1.85 for each succeeding kilometer or a fraction thereof. Compute the bus fare for a distance of 10.5 kilometers.

Tie Breaker

1.) Find the solution to the set of $3|x| = x - 1$.

2.) If $9^y = 81(3^{2x})$ and $x + y = 4$, what is the value of $9^{xy}$?

3.) Find the range of values of the function $\frac{5x+1}{x+3}$ if the domain is restricted to $x \geq 0$. Write your answer in interval notation.

Do or Die

Find the solution set to the inequality $4 - 2x \leq 2x + 5 \leq 3 - 2x$.

Answer Key

Easy

1.) -2

2.) $x = \frac{1}{2}$, $x = -2/3$

3.) 4

4.) $x(2x-1)(3x+2)$

5.) $(-\frac{2}{21}, \infty)$

6.) $\frac{1-x}{x}$

7.)

8.) $7\frac{3x}{x+3}$

9.) 3/5

10.)

11.) $\frac{3\sqrt{2}}{2}$

$-\frac{3}{35}$

Average

1.) y – x

2.)

3.) $3-2\sqrt{2}$

4.) $2x-3y+19=0$

5.) 810 000 $(x+2y-3)(x+2y+2)$

6.) 46

Difficult

1.)38%

2.)

3.) 20km $\sqrt{2}$

4.) -7

5.) A, B, E, C, D

6.) Php22.10

Tie Breaker

1.) Ø

2.) 729

3.) $[\frac{1}{3},5)$

Do or Die

$-1/4$