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THE PURSINTAJJ ZOO

by

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Dr. Ben Pursintajj had managed the family zoo for 60 of his 80 years, or 75 percent of his life. Thanks to this lifelong involvement with animals, he was well-known for his passion to help those that had been injured in the wild. In fact, he was aboard a plane this Saturday morning bound for Africa, where he was to return a rescued hippopotamus to her herd. It was just about the time that Dr. Pursintajj's plane lifted off the runway at the airport that the zoo staff discovered he hadn't scheduled anyone to feed the herbivores…

It started just like any other Saturday at the Pursintajj Zoo. Kids were streaming in to watch the morning feedings and ride the carousel. Kids like Al G. Break and EQ Wayshun. They were best buddies, and even though only 12-years-old, they had both decided to be lifelong zookeepers just like Dr. Ben, as Dr. Pursintajj was known by his friends.

Al and EQ (his name was Edward Quentin, but everybody called him "EQ") had been coming to the Pursintajj Zoo since they were born in the Frakshawn Hospital just down the street there in Tejure, near the base of the famous Newmore Heytore mountain range.

Al was taller and typically wearing jeans and Nike high-top basketball shoes while EQ was more a medium build and always wearing a neon orange hunting cap.

The boys stopped by the zoo every day on their way home from school, and were always there early on Saturdays while the zookeepers fed the animals. They especially enjoyed watching the head zookeeper, Ray Shoze, working with the big cats.

But this Saturday morning, something was amiss….

Dr. Ben had left for Africa and forgot to schedule anyone to feed the herbivores. These were his favorite animals, so he always handled their feeding himself such that Ray had never learned what needed to be done. Dr. Ben's niece, Deenah Minnaytore, typically helped, but she was on a month long Caribbean cruise with her friends from college.

What were they going to do?!?

That Saturday morning, Kal Cuelate, who handled the financial affairs of the zoo, was in the zoo management office. He was deep into determining how much feed they needed to order for the animals next month. Then suddenly, Ray burst in the front door and exclaimed, "Kal, what are we going to do about the herbivores?! Dr. Ben left and didn't get anyone to feed them!"

At just that moment, Al and EQ were passing by the office and said, "Hey, we are here every Saturday and have watched Dr. Ben feed for a long time. Can we do the feeding today?"

Kal looked unsure, but Ray said, "I am busy all day with the new tiger cubs, so you look like our only option. Are you sure you can handle it?"

"As sure as my name is Al G. Break! I am certain that EQ and I can determine how much of which feed to give what animals, and where," proclaimed Al.

 "Well, OK. Kal, do you have the feeding schedule, and can you help them?" asked Ray.

Distractedly, Kal said, "I have got to get this feed order sent in by noon and have just started, so I don't have time to spare, but Kali Brasian, my sister's 11-year-old daughter is around here somewhere. She can show you where the feeding schedule is." "Kali!" he yelled.

"Yes, UnKal?" she responded, entering through the storeroom doors with a toy lemur on her head like a hat. Kali was very tall with dark brown hair and hazel eyes.

Kal then queried Kali, "You remember AI and EQ, don't you? They will be feeding the herbivores for Dr. Ben today and we need you to help them."

"Yahoo! Can I work the scale?" asked Kali Brasian.

"Sure," said AI, and then he continued, "but first we need you to show us where the feed schedule is."

 "Oh, that's easy," responded Kali. "That's on the feed barn wall just inside the big rolling door."

So, the three kids headed to the feed barn while Kal Cuelate went back to the feed calculations, and Ray Schoze drove over to the tiger cage to check on the new tiger cubs.

Al and EQ were excited, but a little nervous because they weren't sure what kind of directions to expect. Feeding had sounded like great fun at the time, but now they were beginning to realize how big a responsibility it was, and how dangerous it might be…

They were initially relieved to see the feeding instructions posted on the cork board just inside the rolling feed barn door just as Kali said, but became concerned when they read the details.

All the animals were to be given mixtures of many different kinds of feed, and the only things listed were the total amount to feed and the percentages of each type in that mixture. How were they supposed to figure out how much of each feed to add to the mixture?

Kali Brasion showed them the scale and then they all sat down and thought. Then Al suggested, "Let's read the instructions again for feeding the finches, parakeets, and cockatoos to see if that gives us any ideas."

The instructions read:

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Habitat #202
Finches, Parakeets, and Cockatoos

Morning feeding of 10 pounds mixed as such:

30% maize
20% shredded stems
20% assorted dried fruit and berries
10% in-shell sunflower seeds
10% weed seeds
10% vitamin pellets
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After reading the instructions, they once again stared at each other, speechless.

Suddenly, an idea formed in EQ's head. "100 percent divided by 10 pounds is 10 percent per pound." Kali and Al gazed at EQ, first wondering where that came from, and then realizing that it was the breakthrough that they needed.

"So now we measure a pound for every 10 percent and then put it all in one big bucket." offered Al. "OK, let's get to it!" exclaimed Kali.

So they mixed the feed for Habitat #202, found the wagon that Dr. Ben used for delivery, and provided the morning meal. As they headed back to the feed barn to prepare the meal for the next habitat, they listened joyfully to the "Chirp! Chirp! Chirp!" of the happy finches, parakeets, and cockatoos.

Next was the mix for the llamas, zebras, okapi, and pronghorn. This was a little trickier,

for the following was posted:

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Habitat #404
Llamas, Zebras, Okapi, and Pronghorn

Morning feeding of 2 bales of coastal Bermuda hay,
1 bale of sage brush and 60 pounds of feed mixed as such:

25% leaf pellets
15% alfalfa pellets
15% cottonseed hulls
10% maize
10% crimped oats
10% corn
10% carrots
5% shredded leaves
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Kali and Al looked at EQ again for direction. So he started again…

"100 percent divided by 60 pounds is…is…is…"

"1.66666 to infinity percent per pound." blurted Kali.

"Argh! We will NEVER get that measured correctly!" shouted Al, frustratedly.

"Well, since 5 percent is the smallest amount, let's figure out how many pounds that is

and then factor up to get the other amounts." suggested EQ.

"OK, Miss human calculator, how many pounds is 5 percent?" questioned Al.

"Wellll…, 1.66666 to infinity percent per pound times 2 pounds is 3.33333 to infinity percent. 1.66666 to infinity percent per pound times 3 pounds is 5 percent. So, 5 percent equals 3 pounds!" Kali screamed enthusiastically.

"That's the key! So for the 25 percent leaf pellets, we then just multiply 3 pounds times 5." added EQ.

Proud of their problem-solving success, the kids began building the complex mixture and loading the trailer, and then all three pulled the meal out to Habitat #404.

EQ broke up the coastal Bermuda and sage brush bales on the left side of the pen to attract the llamas, zebras, okapi, and pronghorn while Al and Kali snuck the other, more popular feed mixture into several hollowed logs on the right side of the herbivore home.

The plan worked perfectly and they paused to listen to the contented munching before returning to prepare the next meal.

The final feeding, Habitat #505, was going to be the most difficult, and the most dangerous…

Dr. Ben was a progressive zookeeper who was experimenting by allowing giraffes, elephants, hippopotami, and Cape buffalo to roam freely in a single, shared habitat.

Periodically, disagreements arose among the different species, but 99 percent of the confrontations resulted in no serious harm. The arrangement was similar to their existence on the Serengeti Plain in Africa and yielded significant learning opportunities in the study of species interaction.

The challenges for the kids were that the sheer volume of food required multiple trips to the Habitat, these animals were large, and the beasts became much more animated when their food appeared.

In the habitat were:

4 Hippopotami

5 Elephants

6 Giraffes

10 Cape Buffalo

This was Al's favorite exhibit at the zoo, so he knew the strategy for this feeding, but before he could start explaining what to do, Kali shared an unexpected insight…

"Cape buffalo make up 40 percent of the population, so you need to do something to deal with them first, because they are also the most aggressive. And the giraffes make up 24 percent and are large, so you should get them out of the way quickly, too."

Al and EQ stared at her with surprise. Finally EQ said, "How did you calculate those percentages so fast in your head?"

"Oh, that was easy" said Kali, "Since there are 25 animals, you multiply that by 4 to get 100. And since percentage is a measurement based on 100, then you can just multiply the quantity of each species by 4 to get the percent."

"Wow…" said EQ.

"OK, good points" affirmed Al G. Break, "all those are covered in my plan."

Al knew the feeding requirements by heart from watching Dr. Ben, but checked the board, just to be sure.

Habitat #505
Giraffes, Elephants, Hippopotami, and Cape Buffalo

10 bales of coastal Bermuda hay

6 cubic feet of compressed leaves

4 50-pound bags of alfalfa pellets

3 50-pound bags of dried fruit and carrots

1 50-pound bag of crimped oats

After confirming the needs, he explained the plan…

"First let's load all the hay and pellets that we can pull on the wagon and stack it by the pen. Then EQ and I will come back for the second load while Kali climbs the stairs to the special giraffe food storage area and moves their food to their treetop feeders."

"Then EQ and I return with the 2nd load and spread 25 percent of the total alfalfa pellets over on the right side of the pen to attract the Cape buffalo. With the giraffes and Cape buffalo focused on eating, we can then go in and spread the hay in the center for the elephants and hippos. Finally, when we finish that, we can safely spread the other 75 percent of the alfalfa pellets, the crimped oats, and the dried fruit and carrots in the left side of the pen. Any questions?"

"How many bags is 25 percent of the pellets?" asked EQ.

Kali responded quickly, "The directions say to feed 4 bags, so each bag represents 25 percent. That means that you start by spreading just one bag."

"Wow! It scares me how fast you do that." remarked EQ.

Amazingly, it all worked just as Al had planned, and thus the herbivore feeding was complete. Kali even got the bonus of scratching a giraffe's ear. She was surprised at how rough the hair was.

Ray was driving up to the feed barn to get some supplies just after the kids returned from Habitat #505 and were parking Dr. Ben's wagon.

"How did it go?" asked Ray.

"It was awesome!" yelled Al and EQ, as they jumped in Ray's cart. "Can we do this every day?"

"Well, I passed the habitats you handled on the way over here and things looked fine. As long as your parents are OK with it, I don't see why you couldn't feed them every Saturday." commented Ray. "We can certainly use the extra help…maybe we should let you be the first members of the junior zookeepers program that we are starting this year."

"That would be too cool!" They exclaimed in unison.

"Well, I will talk to Dr. Ben and see what we can do." said Ray.

Kali climbed in after parking the wagon and checking the scale, and Ray drove them all back to the office.

The soon-to-be junior zookeepers burst through the front doors of the management

office and told anyone that would listen, and some that wouldn't, about their morning.

Then Kal Cuelate asked his niece, Kali Brasion, "And how much of the work did you do,

young lady?" Her response reflected the team pride that she had built that day with Al

and EQ. She proudly exclaimed, "We are a team, UnKal, so we all did 33.33333 to

infinity percent!"

Beyond the Story

Did you notice that all the names are math words?

Name	Math Word	Definition
Pursintajj	Percentage	Proportion of each hundred.
Al G. Break	Algebraic	Having to do with the relations and properties of quantities by the use of symbols and letters in equations to solve problems.
EQ Wayshun	Equation	Statement of the equality of two quantities.
Frakshawn	Fraction	Ratio of two numbers.
In Tejure	Integer	Any positive or negative whole number.
Newmore Heytore	Numerator	Number above the line in a fraction which shows how many parts are taken.

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Name	**Math Word**	**Definition**
Ray Shoze	Ratios	Orders of magnitude. When comparing two numbers, this is the number of times that one contains the other.
Deenah Minnaytore	Denominator	Number below the line in a fraction which shows the size of the parts in relation to the whole.
Kal Cuelate	Calculate	Find out by adding, subtracting, multiplying, and/or dividing.
Kali Brasian	Calibration	Determine, check, and adjust the scale of a measuring device by comparison with a standard instrument.

Pursintajj Zoo Worksheet

1) Kal Cuelate needs some help figuring how much trout feed to order for the next month. Each trout requires 1.5 pounds of food each day. There are 15 trout today and the zoo will receive another 10 trout in 2 weeks. Next month has 28 days. How much trout food should Kal order?

2) Al and EQ have been tasked with moving the giraffe feed from the main barn to their special treetop feed storage unit. They must finish before noon as they are eating lunch with some friends. If together they can transport 3 bales on each trip and each trip takes 15 minutes, what is the latest that they can begin moving 30 bales and still be done by noon.

3) Dr. Pursintajj takes pride in that he has been able to add a new, major exhibit to his zoo every 5 years. If he has managed the zoo for 60 years, how many new exhibits has he added?

4) Kali Brasion has noticed a problem with the scale. When she puts a 10 pound weight on the scale, it registers 16 pounds. What will the scale register when she places a 25 pound weight on it?