1 All 600 students in Steve Xu's selective class took the test last week, 70 percent of which passed the test.

If 75 percent of the boys and 60 percent of the girls passed the test, how many girls took the test?

A 100 girls
B 200 girls
C 250 girls
D 350 girls
E 500 girls

2 At exactly 9:00 AM, Jeff's car is 30 kilometres north of his house and will continue to drive north at 0.8 minutes per kilometre before turning around and driving at 0.8 minutes per kilometre back to his house.

How far can Jeff drive his car before turning around if he wants to return to his house by 9:40 AM?

A 10 kilometres
B 11 kilometres
C 12 kilometres
D 13 kilometres
E 14 kilometres

3 At the hardware store, the price of a wrench is 150 percent greater than the price of a screwdriver.

If the total cost of 700 screwdrivers is $3 500, what is the total cost of 500 wrenches?

A $3 750
B $4 200
C $4 700
D $5 250
E $6 250

4 Two-fifths of the balls in the box are red, and one-fourth of the remaining balls are green.

If there are 120 green balls in the box, how many red balls are there?

A 40 red balls

B 45 red balls

C 192 red balls

D 320 red balls

E 800 red balls

5 Dexter needs to download a 6-terabyte file.

If he can download 100 megabytes per minute, how long will it take Dexter to download the entire file? (Note: 1 terabyte = 1 000 000 megabytes)

A 100 hours

B 600 hours

C 1 000 hours

D 6 000 hours

E 60 000 hours

6 When the original price of a carton of milk is discounted by 40 percent, four more cartons can be bought for $12 than can be bought for the original price.

How many cartons of milk can be bought for $24 at the original price?

A 8 cartons

B 12 cartons

C 16 cartons

D 20 cartons

E 24 cartons

7 The average (arithmetic mean) age of a group of 4 friends is 3 years older than 4 times the age of the youngest friend.

If the youngest friend is Y years old, which of these gives the average age, in years, of the other three friends?

A 2Y + 2

B 4Y + 3

C 5Y + 4

D 5Y + 6

E 6Y + 4

8 During a science experiment, 5 rock samples each have a mass of 150 grams, 3 rock samples each have a mass of 170 grams, and 1 rock sample has a mass of 180 grams.

What is the average (arithmetic mean) mass of all 9 rock samples?

A 156.25 grams
B 160 grams
C 164.45 grams
D 166.67 grams
E 170 grams

9 Four containers each have different capacities.

The largest container has a capacity of 14 litres, and the smallest container has a capacity of 13 litres.

Which of the following could not be the average (arithmetic mean) capacity of the four containers?

A 13.2 litres
B 13.3 litres
C 13.5 litres
D 13.6 litres
E 13.7 litres

10 Scooby Doo shared some stickers with Shaggy, Velma, Daphne, and Fred.

He gave 1/5 of the stickers to Shaggy and half of the remaining stickers to Velma.

After giving stickers to Velma, he gave 1/4 of the remaining stickers to Daphne and gave the rest to Fred.

If Fred got 6 stickers, how many stickers did Scooby Doo have at the beginning?

A 20 stickers
B 25 stickers
C 30 stickers
D 40 stickers
E 60 stickers

11 The maximum load a lift can carry at any time is 710 kilograms.

There is already a crate with a mass of 150 kilograms and two barrels, each with a mass of 70 kilograms, inside the lift.

If the lift will carry 4 more boxes that weigh as much as possible without exceeding the maximum limit, what is the difference between the average (arithmetic mean) mass of the boxes and the average mass of the two barrels already in the lift?

A 30 kilograms
B 35 kilograms
C 40 kilograms
D 45 kilograms
E 55 kilograms

12 Barbie is making a necklace using different coloured beads.

She starts the necklace with 4 red beads, then 6 yellow beads, and then 2 orange beads, in that order, and repeats the pattern.

If the last bead in the necklace is orange, which of the following could be the total number of beads in the necklace?

A 89 beads
B 90 beads
C 95 beads
D 97 beads
E 102 beads

13 The number of bacteria in a certain culture increases by 25 percent per hour.

If the number of bacteria in the culture at 10:00 AM is 240 000, what was the number of bacteria in the culture at 9:00 AM?

A 180 000
B 192 000
C 210 000
D 288 000
E 300 000

14 Door 1 opens to the red room, door 2 opens to the green room, and door 3 opens to the blue room.

Each door is labelled with the room colour, but the labels were accidentally placed incorrectly.

When Big Bird opens the door labelled “green room,” the door opens to the red room.

Which of the following statements must be true?

I. Door 1 was labelled “green room.”
II. Door 2 was labelled “blue room.”
III. Door 3 was labelled “red room.”

A I only
B II only
C III only
D I and II only
E I, II, and III

15 Container A is 2/3 full of water, and container B, which has 50 percent more capacity than container A, is 3/4 full of water.

If half of the water in container A is poured into container B, then container B will be filled with water to what fraction of its capacity?

A 27/36
B 10/11
C 11/12
D 23/24
E 35/36

16 A piece of wood 100 centimetres long is marked off in sixths and eighths.

The carpenter then cuts the wood along the marks.

What is the length of the shortest piece that the carpenter cuts?

A 3 5/6 centimetres
B 4 1/6 centimetres
C 6 1/4 centimetres
D 8 1/12 centimetres
E 12 1/2 centimetres

17 Elmo is shipping out 8 boxes, each with a mass of 8 3/8 kilograms, and 4 boxes, each with a mass of 7 1/4 kilograms.

What is the average (arithmetic mean) mass of the 12 boxes Elmo is shipping out?

A 7 5/16 kilograms
B 7 5/8 kilograms
C 7 13/16 kilograms
D 8 kilograms
E 8 2/3 kilograms

18 What is the least number of crayons that must be added in a box of 263 crayons so that the total number of crayons can be equally distributed among 6, 7, and 8 students?

A 66 crayons
B 69 crayons
C 72 crayons
D 73 crayons
E 77 crayons

19 Half of the sand in the bucket is removed for every full wheel rotation.

If one full wheel rotation takes 5 minutes, what fraction of the original amount of sand in the bucket was removed after 20 minutes?

A 15/16
B 7/8
C 1/4
D 1/8
E 1/16

20 A piggy bank contains four coins that are either a 5-cent coin or a 1-cent coin.

Which of the following could be the total value of the coins in the piggy bank?

I. 8 cents
II. 16 cents
III. 22 cents

A I only
B II only
C III only
D I and II only
E I, II, and III

21 Mickey Mouse had a collection of 40 stamps, 60 percent of which were Australian stamps.

If he bought 60 more stamps, 25 percent of which are not Australian stamps, what percentage of his stamps now are Australian stamps?

A 25 percent
B 45 percent
C 54 percent
D 69 percent
E 85 percent

22 Daisy Duck can buy 12 roses and 5 lilies at the flower shop for $16.20 or 5 roses and 2 lilies for $6.60.

How much would buying 2 roses and 1 lily at the flower shop cost?

A $3.00
B $3.30
C $3.60
D $3.80
E $3.90

23 In any given week, Jessy earns $48 per hour for the first 40 hours she works and 1.2 times that rate for each hour of overtime.

How many hours did she work if Jessy earned $1 824 last week?

A 36 hours
B 38 hours
C 42 hours
D 44 hours
E 46 hours

24 Exactly one-fifth of the students in Miss Carol's class and exactly two-thirds of the students in Miss Erica's class are members of the Chess Club.

If there are a total of 45 students in the two classes, what is the least possible number of students in the two classes who are not members of the Chess Club?

A 8 students
B 16 students
C 17 students
D 22 students
E 23 students

25 At the office supply store, pens cost between $3 and $5 each, and markers cost between $5 and $10 each.

If Bugs Bunny bought 5 pens and 4 markers, which of the following could be the amount he spent at the office supply store?

I. $38.25
II. $44.50
III. $52.75

A I only
B II only
C III only
D I and II only
E I, II, and III

26 Two water jugs contain a total of 2.2 litres of water.

If the smaller water jug contains 0.4 litres less water than the bigger water jug, how many litres of water is in the smaller water jug?

A 0.4 litres
B 0.5 litres
C 0.9 litres
D 1.3 litres
E 1.8 litres

27 During the mall sale, Devin bought more than 10 hand drills that cost $8 each and more than 8 electric drills that cost $20 each.

If the total cost of all the drills he bought was between $240 and $300, exclusive, which of the following could be the number of drills he bought?

I. 20 drills
II. 21 drills
III. 22 drills

A I only
B II only
C III only
D I and II only
E I, II, and III

28 Two bookshelves contain a total of 400 magical books.

If 3 times the number of magical books on the first bookshelf is 200 more than the number of magical books on the second bookshelf, how many magical books are on the second bookshelf?

A 100 magical books

B 150 magical books

C 200 magical books

D 250 magical books

E 275 magical books

29 In a box containing 200 marbles, 40 are red, 64 are blue, 18 are green, 6 are orange, and the rest are white.

What percentage of the marbles in the box are white?

A 12 percent

B 24 percent

C 36 percent

D 48 percent

E 72 percent

30 A group of 15 friends agreed to contribute equal amounts of money to rent a cabin for the weekend.

However, when 3 of the friends backed out, the remaining friends had to increase their payments by $500 each to compensate.

How much did each of the remaining friends end up paying for their share?

A $1 000

B $1 500

C $2 000

D $2 500

E $3 000

31 At the appliance store, Bert bought a blender and a toaster for $2 000, and Ernie bought a microwave oven and the same toaster for $2 000 more than Bert had paid.

If the price of the toaster was one-tenth of the combined cost of the blender and the microwave oven, how much did the blender cost?

A $1 000
B $1 200
C $1 500
D $1 600
E $1 800

32 Bubble gums cost 15 cents each, and candy canes cost 25 cents each.

If Piglet spent $4.35 on bubble gums and candy canes, which of the following could be the number of candy canes he bought?

A 5 candy canes
B 8 candy canes
C 10 candy canes
D 15 candy canes
E 20 candy canes

33 Vanellope was offered two long-distance plans.

Under the first plan, each long-distance call costs $6 for the first 7 minutes and 60 cents per minute afterward.

Under the second plan, each long-distance call costs 80 cents per minute.

For what duration of a long-distance call will the charge be the same for both plans?

A 8 minutes
B 9 minutes
C 12 minutes
D 13 minutes
E 15 minutes

34 Cinderella spent 60 percent of her money on a dress and spent one-third of the remaining money on a purse.

If she had $30 left, how much money did she have at the start?

A $245.00
B $225.00
C $167.50
D $112.50
E $68.20

35 The height of the pine tree is twice the height of the oak tree.

The height of the oak tree is 60 percent of the height of the maple tree.

The height of the elm tree is 50 percent of the height of the cedar tree.

The height of the cedar tree is 190 percent of the height of the pine tree.

Which of these trees is the shortest?

A Cedar tree
B Elm tree
C Maple tree
D Oak tree
E Pine tree