

TOPIC 19

Numeracy 3

19.1 Overview

Numerous **videos** and **interactivities** are embedded just where you need them, at the point of learning, in your learnON title at www.jacplus.com.au. They will help you to learn the concepts covered in this topic.

19.1.1 Why learn this?

Understanding numeracy helps us make sense of mathematical ideas and how they relate to everyday life.

Numeracy includes counting, addition, subtraction, multiplication and division, fractions, decimals, measuring, understanding shapes and graphs.



19.1.2 What do you know?

assess on

- 1. THINK** List what you know about numeracy. Use a thinking tool such as a concept map to show your list.
- 2. PAIR** Share what you know with a partner and then with a small group.
- 3. SHARE** As a class, create a thinking tool such as a large concept map that shows your class's knowledge of numeracy.

LEARNING SEQUENCE

- 19.1** Overview
- 19.2** Set E
- 19.3** Set F

19.2 Set E

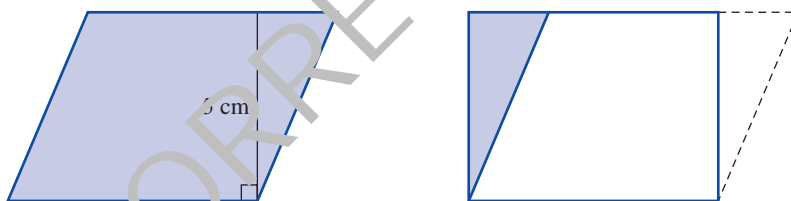
19.2.1 Calculator allowed

- In May 2013 the number of students at a school was 1200. Given that the number of pupils in May 2014 was 1320, find the percentage increase in the number of students.
- A carpenter is looking for the smallest nail diameter in order to construct a cabinet. Choose the smallest diameter from the following sizes:

A. 0.22 mm **B.** 0.109 mm **C.** 0.072 mm **D.** 0.284 mm
- Jamie earns \$26 from mowing lawns and \$27 from delivering pamphlets each week. Jamie also receives \$20 per week in pocket money from his parents. Each week he keeps \$27 in spending money and banks the rest. Calculate the amount that Jamie banks each week.
- Twenty students were surveyed on the type of music they liked. The results were:
 - $\frac{1}{5}$ liked pop
 - $\frac{1}{10}$ liked rock
 - $\frac{1}{4}$ liked hip hop
 - $\frac{1}{20}$ liked classical
 - the rest of the students liked more than one type.

How many students liked more than one type of music?
- A rectangular luggage label has an area of 96 cm^2 and a width of 8 cm. What is the perimeter of the label?

A. 40 cm **B.** 20 cm **C.** 12 cm **D.** 32 cm
- The area of this parallelogram is 40 cm^2 . What will be the perimeter of the rectangle created by moving the right-angled triangle as shown?



- A computer costs \$1200. It is reduced by 5% in a sale. What is the sale price of the computer?

A. \$1000 **B.** \$1195
C. \$1140 **D.** \$60
- Gordon is given a new PIN for his debit card. He calculates that if he divides his PIN by his age, which is 14, and then adds his house number, which is 105, the answer will be 225. What is the PIN?
- A skip that holds 3.6 cubic metres has been delivered. You can use a wheelie bin with a capacity of 240 L to transport your rubbish to the skip. How many trips will you make to fill the skip? ($1 \text{ m}^3 = 1000 \text{ litres}$.)

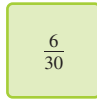
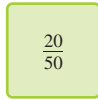
A. 15 **B.** 14 **C.** 150 **D.** 140



10. I buy 12 CDs at a cost of \$65.00. If I return 25% of them to the shop, how much money will I get back?

- A. \$3.00 B. \$59.58 C. \$16.25 D. \$21.67

11. How many of these cards show values the same as $\frac{2}{5}$?



- A. 4 B. 3 C. 2 D. 1

12. When 2^8 is divided by 2^4 , the answer is:

- A. 2^2 B. 2^4 C. 2^{12} D. 4^4

13. Which of the following has the largest value?

- A. $3^2 \times 3^2$ B. $3^3 \times 3^2$ C. $\frac{3^8}{3^2}$ D. $\frac{3^2}{3^8}$

14. The table on the right shows the time that Angela spent running this week. What was the average time spent running?

- A. 210 minutes B. 50 minutes
C. 35 minutes D. 30 minutes

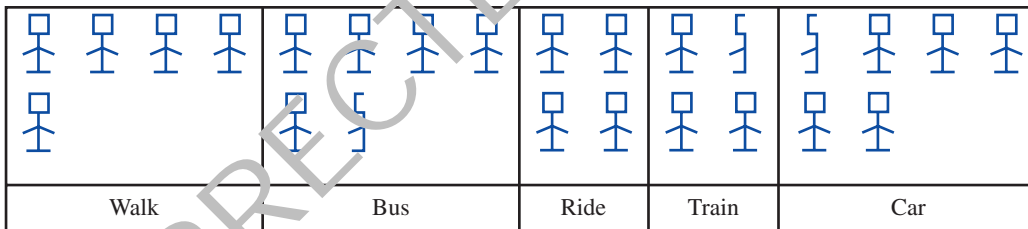
Day	Time
Monday	35 minutes
Tuesday	25 minutes
Wednesday	30 minutes
Thursday	42 minutes
Friday	50 minutes
Saturday	28 minutes

15. Justin buys some footy cards for \$8.95 and soft drink for \$3.80. He pays with a \$20 note. How much change does he receive?

- A. \$6.75 B. \$7.80
C. \$7.25 D. \$7.76

16. The students of Year 7 did a survey on how they travel to school, and recorded their data in a pictograph. How many students are in Year 7?

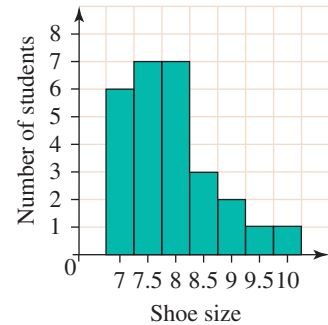
= 6 students = 3 students



- A. 150 B. 147 C. 141 D. 132

17. The bar graph represents the shoe sizes of 28 Year 7 students in a mathematics class. What percentage of students has a shoe size greater than 7.5?

- A. 50% B. 30%
C. 60% D. 30%



18. Ann, Meg and Sally shared a pizza. Ann ate $\frac{1}{4}$ and Meg ate $\frac{1}{6}$ of the pizza. What was left for Sally?

- A. $\frac{1}{5}$ B. $\frac{4}{5}$ C. $\frac{5}{12}$ D. $\frac{7}{12}$

19. You buy 3.5 kg of chicken at \$15.30 per kg and 2.5 kg of potatoes at 90 cents per kg. You have only \$40. You try to work out by how much you are short. Which number sentence best describes your problem?

- A. $(3.5 \times 15.30 + 2.5 \times 90) - 40$ B. $40 - 3.5 \times 15.30 + 2.5 \times 0.90$
 C. $3.5 + 2.5 \times 15.30 \times 0.90 - 40$ D. $40 - (3.5 \times 15.30 + 2.5 \times 0.90)$

20. The planet Mercury has a diameter that is 38% less than the planet Earth's diameter, which is 12756 km. What is the diameter of Mercury? (Round to the nearest kilometre.)

21. The table shows the prices for admission to the museum.

Admission	
Adults	\$19.80
Children	\$12.25
Family (2 adults and 2 children)	\$49.75

How much do you save by buying a family ticket instead of buying 2 adults and 2 children?

- A. \$14.35 B. \$17.75 C. \$10.75 D. \$7.55

22. The maximum temperatures in Perth and at Mt Buller were recorded for one week.

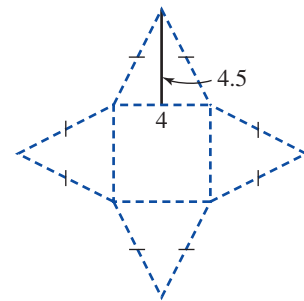
	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
Perth	16	12	14	10	8	9	11
Mt Buller	-3	-1	-6	-2	-3	-1	-4

On which day is the temperature difference the greatest?

- A. Monday B. Wednesday C. Friday D. Sunday

23. What is the area of this star-shaped diagram?

- A. 56 unit^2
 B. 52 unit^2
 C. 61 unit^2
 D. 96 unit^2



24. The following table shows the ages of people on a bus.

	0-19	20-29	30-39	40-49	50-59	60-69	70-79	>79
Male	5	1	5	2	0	4	1	0
Female	2	2	7	1	3	4	0	1

Which is the closest percentage of people on the bus who were less than 30 years old?

- A. 20% B. 22%
 C. 24% D. 26%

25. Fill in the missing terms in the following number pattern.

45, ____, 37, 33, ____, ____, ...

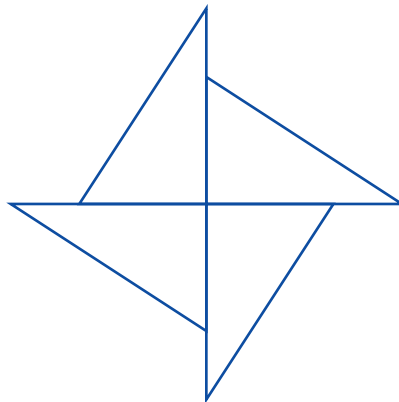
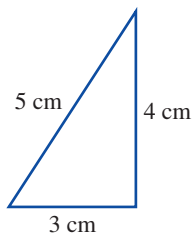
26. I have a dripping tap that increases my water consumption by 3%. I used 64 kilolitres over a 3-month period and my tap was constantly dripping over that period of time. How many litres could I have saved by fixing my tap?

27. The average bath uses two-and-a-half times as much water as a three-minute shower. If the average shower uses 15 litres of water per minute, how many more litres are used by having a bath?

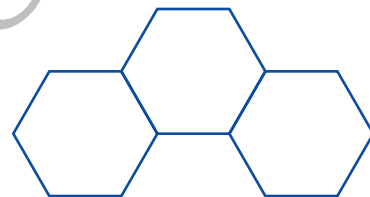
- A. 80 L B. 67.5 L C. 77 L D. 60.5 L



28. At 10 drips per minute, a leaking tap wastes 3000 litres of water in a year. At this rate, how many millilitres of water are wasted per drip? (Round to 2 decimal places.)
- A. 1.92 mL B. 13 mL C. 0.57 mL D. 14 mL
29. A star shape is made by combining four copies of the single triangle shown. What is the star's perimeter?



- A. 32 cm B. 26 cm C. 24 cm D. 20 cm
30. You have a number of regular hexagon tiles with sides of 6 cm. In 6 tiles are joined in the pattern presented, what will be the perimeter?

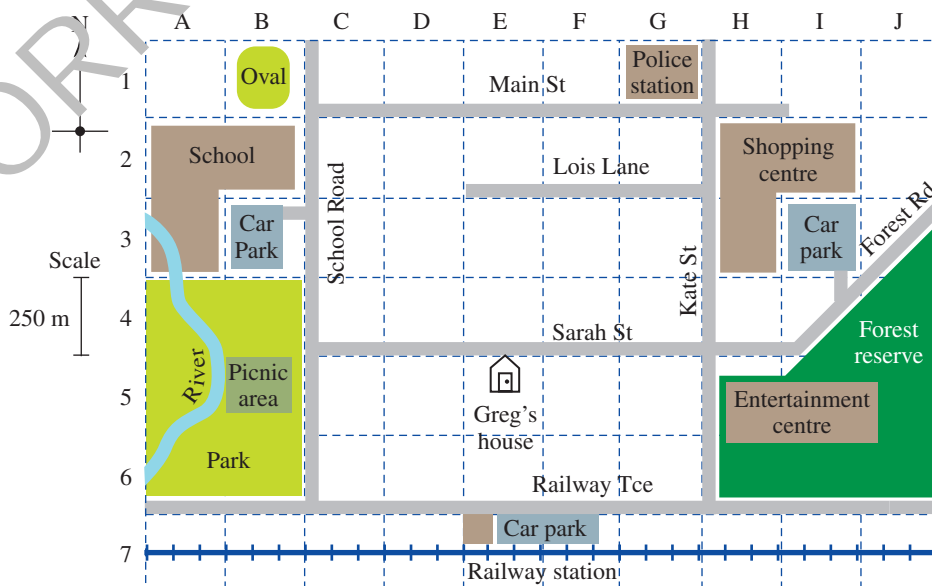


- A. 172 cm B. 156 cm C. 164 cm D. 160 cm

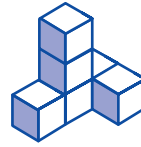
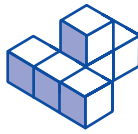
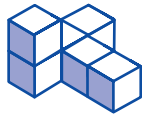
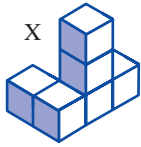
19.3 Set F

19.3.1 Non-calculator

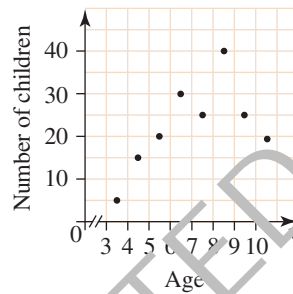
Use the following map to answer questions 1, 2 and 3.



- What is the direct (straight line) distance from the front of Greg's house to the car park entrance near the school?
 - 1000 m
 - 750 m
 - 625 m
 - 500 m
- I meet a friend at E6. We walk west 0.75 km, then 1.25 km north and finally 1 km east. Where are we on the map?
 - D2
 - E2
 - F2
 - F1
- Which of the following directions will I need to follow to get to the railway station from the house?
 - Turn left and walk 625 m, turn left and walk 500 m, turn left and walk 250 m.
 - Turn right and walk 625 m, turn left and walk 500 m, turn left and walk 500 m.
 - Turn left and walk 625 m, turn left and walk 500 m, turn left and walk 500 m.
 - Turn left and walk 625 m, turn right and walk 500 m, turn left and walk 500 m.
- How many of the shapes below are the same as X?
 - 0
 - 1
 - 2
 - 3



- 0
 - 1
 - 2
 - 3
- From the graph, how many of the children are less than 7 years of age?
 - 30
 - 25
 - 70
 - 27



- Students were asked to state how many SMSs they sent in one day. From the tally chart, what are the values of x , y and z ?

Number of SMS	Tally	Frequency
0		3
1		x
2		y
3		z
4		4
5		6

- 7, 5 and 16
 - 6, 8 and 15
 - 8, 10 and 17
 - 7, 18 and 48
- What is the value in degrees of the angle x in the triangle shown in Figure 1?
 - Jacinta is painting her bedroom. The area of the walls is 59 m^2 , and each can of paint will cover an area of about 11 m^2 . Estimate how many cans of paint Jacinta will need to buy.

- 4 cans
- 1 can
- 5 cans
- 6 cans

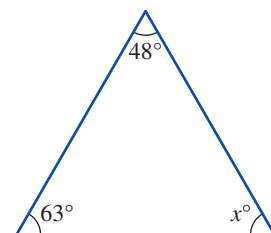


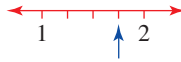
FIGURE 1

9. Figure 2 shows the plan of a swimming pool. What is its perimeter?

- A. 36.5 m B. 51 m
C. 46 m D. 62 m

10. What is the reading on this scale?

- A. 1.50 B. 1.55
C. 1.75 D. 1.8



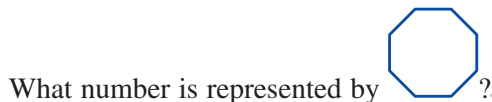
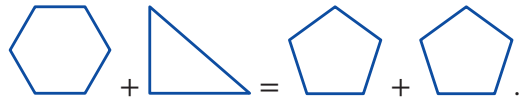
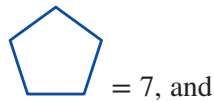
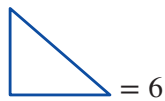
11. Which of the following is most likely to be the diameter of a dinner plate?

- A. 12 cm B. 25 cm
C. 50 cm D. 75 cm

12. You arrive at a backpackers on 29 March and leave on 3 April. If you pay \$45 per night, what is your total bill?

- A. \$225 B. \$270
C. \$315 D. \$45

13. Let



What number is represented by ?

- A. 6 B. 7 C. 8 D. 9

14. In a classroom, $\frac{6}{10}$ of the students are female. What percentage are boys?

- A. 60% B. 50% C. 35% D. 40%

15. A map has a scale of 1:35000. How much does 1 cm on the map represent in real life?

- A. 350m B. 3m C. 3500m D. 35 km

16. You divided 60 sweets between your two brothers in the ratio of their ages. If Nyg is 7 and Tyng is 5, how many does Tyng receive?

- A. 25 B. 35 C. 5 D. 12

17. One angle of an isosceles triangle measures 40° . If the other two angles are the equal angles, find the measure of each of those angles.

- A. 50° B. 140° C. 70° D. 40°

18. If X represents the number of stamps that Alice had, and Alice then gave 15 stamps to her friend, which expression shows how many stamps Alice has now?

- A. $15 + X$ B. $15 - X$
C. $X - 15$ D. $X \div 15$

19. What are the whole numbers that make $9 - __ > 4$ true?

- A. 0, 1, 2, 3, 4, 5 B. 0, 1, 2, 3, 4
C. 0, 1, 2 D. 5

20. A calculator display shows 4.33333. Which problem could have given that answer on the calculator?

- A. $4 + .3$ B. $4 \times .3$
C. $33333 + .4$ D. $\frac{13}{3}$

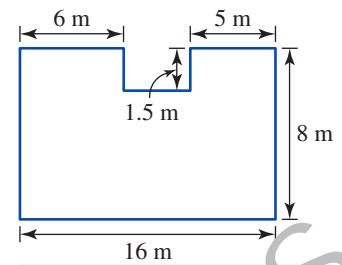


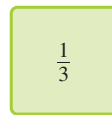
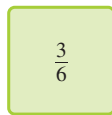
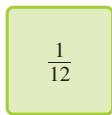
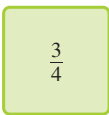
FIGURE 2



UNCOPYRIGHTED PAGE PROOFS



21. You are given 4 cards, each with a fraction on it. Can you arrange them from the smallest to the largest?



A. $\frac{1}{12}, \frac{1}{3}, \frac{3}{6}, \frac{3}{4}$

B. $\frac{1}{3}, \frac{3}{4}, \frac{3}{6}, \frac{1}{12}$

C. $\frac{1}{12}, \frac{1}{3}, \frac{3}{4}, \frac{3}{6}$

D. $\frac{1}{3}, \frac{1}{12}, \frac{3}{6}, \frac{3}{4}$

22. 120 people attended the Year 7 production. Tickets cost \$16.70. Half the people bought programs at \$4.00. How much money was collected?



23. The table below shows information about a Year 7 class and mobile phones.

	Own mobile	Do not own mobile
Boys	8	10
Girls	10	4

What is the probability of choosing a girl who owns a mobile phone?

A. $\frac{7}{16}$

B. $\frac{5}{16}$

C. $\frac{9}{16}$

D. $\frac{5}{9}$

24. Which one of the following does not represent 12×6 ?

A. $10 \times 6 + 2 \times 6$

B. $7 \times 6 + 5 \times 6$

C. $12 \times 4 + 12 \times 2$

D. $12 \times 3 + 12 \times 2$

25. \$5 is taken off the price of all items for one day only. How much would you pay for items worth \$32, \$48.85, \$57.95, \$114, \$151.75, \$201.65?

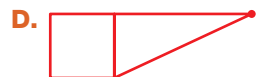
A. \$601.20

B. \$575.20

C. \$600.35

D. \$576.20

26. When you rotate the following diagram anticlockwise 90° about the point, which of the following will be the result?



27. Which of these has the least value?

A. 20%

B. $\frac{3}{5}$

C. $\frac{1}{10}$

D. 0.3

28. Hector is sixty-nine years old. He was born on 29 February. How many times has he had a birthday?



29. A rope measures $3\frac{2}{3}$ m. Which of the following has the same measurement?

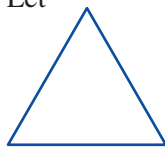
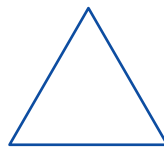

A. $\frac{7}{3}$ m

B. $\frac{8}{3}$ m

C. $\frac{10}{3}$ m

D. $\frac{11}{3}$ m

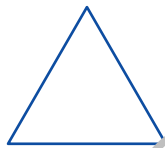



30. Let




 $= 600$, and



 $= 350$.

What do these shapes total when they are combined?





 $= ?$

A. 750

B. 850

C. 950

D. 1050

Answers

Topic 19 Numeracy 3

Exercise 19.2 Set E

19.2.1 Calculator allowed

- | | | | |
|-------------------|------------|---------|-------------|
| 1. 10% | 2. C | 3. \$46 | 4. 8 |
| 5. A | 6. 26 cm | 7. C | 8. 1680 |
| 9. A | 10. C | 11. B | 12. B |
| 13. C | 14. C | 15. C | 16. C |
| 17. A | 18. D | 19. D | 20. 7909 km |
| 21. A | 22. B | 23. B | 24. B |
| 25. 41, 29 and 25 | 26. 1920 L | 27. B | 28. C |
| 29. C | 30. B | | |

Exercise 19.3 Set F

19.3.1 Non-calculator

- | | | | |
|-------|------------|---------------|--------------|
| 1. B | 2. D | 3. C | 4. C |
| 5. C | 6. A | 7. 69° | 8. D |
| 9. B | 10. C | 11. B | 12. A |
| 13. C | 14. D | 15. A | 16. A |
| 17. C | 18. C | 19. B | 20. D |
| 21. A | 22. \$2244 | 23. B | 24. D |
| 25. D | 26. A | 27. C | 28. 17 times |
| 29. D | 30. B | | |