50 Crispy Word Problems

for NAPLAN Numeracy

Year 7

Engaging Mathematical Challenges to Boost Your Problem-Solving Skills

Introduction

Welcome to your collection of 50 crispy word problems designed specifically for Year 7 NAPLAN Numeracy preparation!

These problems cover a wide range of mathematical concepts including:

- Number operations and mental mathematics
- Fractions, decimals, and percentages
- Measurement and geometry
- Data interpretation and statistics
- Money and financial mathematics
- Time and scheduling problems
- Ratio, proportion, and rates
- Basic algebraic thinking

Instructions: Read each problem carefully, show your working, and check your answers at the end of this ebook.

Problem 1: The School Fair

Sarah's school is organising a fair. Entry tickets cost £4.50 for adults and £2.75 for children. If 127 adults and 89 children attend the fair, what is the total revenue from ticket sales?

Problem 2: Pizza Party Calculations

A pizza restaurant offers a deal where you can buy 3 pizzas for £24.60. If Jake wants to buy 7 pizzas for his party, how much will he need to pay? (Assume the same rate applies to all pizzas.)

Problem 3: Swimming Pool Dimensions

A rectangular swimming pool has a length of 25 metres and a width of 12 metres. If the pool is surrounded by a pathway that is 1.5 metres wide on all sides, what is the total area of the pool and pathway combined?

Problem 4: Mobile Phone Data Usage

Emma's mobile phone plan includes 15 GB of data per month. In the first week, she used 3.7 GB. In the second week, she used 4.2 GB. If she uses data at the same rate for the remaining two weeks, will she exceed her monthly limit?

Problem 5: Book Reading Challenge

Tom is participating in a summer reading challenge. He needs to read 1,200 pages in 8 weeks. If he reads 45 pages on weekdays and 65 pages on weekend days, will he complete the challenge on time?

Problem 6: Garden Centre Discount

A garden centre is offering a 15% discount on all plants. If Mrs. Johnson buys plants worth £84.00 before the discount, how much will she save, and what will be her final bill?

Problem 7: Train Journey Times

A train leaves London at 09:35 and arrives in Edinburgh at 14:20. If the train makes three stops of 8 minutes each, what is the actual travelling time (excluding stops)?

Problem 8: Chocolate Bar Fractions

Lucy has a chocolate bar divided into 24 equal pieces. She eats 1/3 of the bar on Monday and 3/8 of the bar on Tuesday. How many pieces of chocolate does she have left?

Problem 9: Cinema Ticket Pricing

A cinema charges £8.50 for adult tickets and £5.25 for child tickets. If a family consisting of 2 adults and 3 children goes to see a film, and they buy a large popcorn for £4.75, what is their total bill?

Problem 10: Carpet Area Calculation

A rectangular room measures 4.2 metres by 3.8 metres. If carpet costs £18.50 per square metre, what will be the total cost to carpet the entire room?

Problem 11: School Sports Day

During sports day, 240 students are divided equally into 8 houses. If 3/4 of the students from each house participate in the running events, how many students in total participate in running?

Problem 12: Savings Account Growth

Ben has £450 in his savings account. Each month, he deposits £35 and the bank adds 2% interest on his total balance. What will his balance be after 3 months? (Calculate interest monthly on the new balance.)

Problem 13: Recipe Scaling

A cake recipe for 8 people requires 350g of flour, 200g of sugar, and 150g of butter. How much of each ingredient is needed to make the cake for 12 people?

Problem 14: Bus Route Analysis

A bus travels between two cities, covering 180 kilometres. If the bus maintains an average speed of 45 km/h and makes 4 stops of 10 minutes each, what is the total journey time?

Problem 15: Temperature Conversion

The temperature in Sydney is 28°C. If the temperature in London is 15°C lower than Sydney, and the temperature in New York is 8°C higher than London, what is the temperature in New York?

Problem 16: Water Tank Capacity

A cylindrical water tank has a radius of 2.5 metres and a height of 4 metres. If the tank is currently 3/4 full, how many litres of water are in the tank? (Use π = 3.14 and remember 1 cubic metre = 1,000 litres.)

Problem 17: Exam Score Statistics

In a maths test, 30 students achieved the following scores: 15 students scored between 80-100%, 10 students scored between 60-79%, and 5 students scored below 60%. What percentage of students achieved a score of 80% or above?

Problem 18: Charity Fundraising

A school is raising money for charity. Year 7 raised £348.50, Year 8 raised £276.75, and Year 9 raised £412.25. If their target was £1,000, by how much did they exceed or fall short of their goal?

Problem 19: Art Supply Distribution

An art teacher has 144 coloured pencils to distribute equally among her classes. If she has 6 classes and wants to give each student in a class the same number of pencils, and there are 24 students per class, how many pencils will each student receive?

Problem 20: Gym Membership Comparison

Gym A charges £25 per month plus a £50 joining fee. Gym B charges £30 per month with no joining fee. After how many months will the total cost be the same for both gyms?

Problem 21: Garden Plot Design

A rectangular garden plot has an area of 96 square metres. If the length is 4 metres more than the width, what are the dimensions of the garden?

Problem 22: Marathon Training

Jessica is training for a marathon. In her first week, she runs 15 kilometres. Each subsequent week, she increases her distance by 20%. How far will she run in her fourth week of training?

Problem 23: School Trip Cost Analysis

A school trip costs £15.50 per student. If 85% of the 120 students in Year 7 decide to go on the trip, what is the total amount collected? Additionally, if the actual trip cost is £1,400, how much profit or loss does the school make?

Problem 24: Cooking Time Calculations

A roast chicken needs to cook for 20 minutes per 500g, plus an additional 20 minutes. If the chicken weighs 1.8 kg and needs to be ready by 18:30, what time should it be put in the oven?

Problem 25: Angle Calculations

In a triangle, one angle measures 45°, and another angle is twice as large as the third angle. What are the measurements of all three angles?

Problem 26: Shop Sale Calculations

A clothing shop is having a sale. All items are reduced by 25%, and there's an additional 10% discount for students. If a jacket originally costs £80, what will a student pay for it?

Problem 27: Petrol Consumption

A car travels 420 kilometres on 35 litres of petrol. If petrol costs £1.35 per litre, what is the cost per kilometre to drive this car?

Problem 28: Probability of Weather

The weather forecast shows a 70% chance of rain on Saturday and a 40% chance of rain on Sunday. What is the probability that it will rain on at least one of these days?

Problem 29: Library Book Borrowing

A library charges a fine of 20p per day for overdue books. If Mark returns a book 12 days late and pays a total fine of £3.60, how many books did he return late?

Problem 30: Scale Model Calculations

A model airplane is built to a scale of 1:48. If the model has a wingspan of 25 cm, what is the wingspan of the actual airplane in metres?

Problem 31: Music Festival Attendance

A music festival sold 8,500 tickets. Adult tickets cost £45 each, and child tickets cost £25 each. If the total revenue was £331,000, how many adult tickets and how many child tickets were sold?

Problem 32: Geometry - Circle Area

A circular flower bed has a diameter of 6 metres. If it's surrounded by a circular path that is 1 metre wide, what is the area of the path only? (Use π = 3.14)

Problem 33: Investment Growth

Sarah invests £500 in a savings account that pays 3% simple interest per year. How much money will she have after 4 years?

Problem 34: Sports Team Statistics

A football team played 20 matches. They won 12 matches, drew 5 matches, and lost the rest. If they get 3 points for a win and 1 point for a draw, what is their total points, and what percentage of possible points did they achieve?

Problem 35: Construction Material

A builder needs to construct a fence around a rectangular property that measures 45 metres by 30 metres. If fence panels are 3 metres long and cost £25 each, what is the total cost of the fence panels?

Problem 36: Speed and Distance

Two cyclists start from the same point and travel in opposite directions. One travels at 15 km/h and the other at 20 km/h. How far apart will they be after 2.5 hours?

Problem 37: Baking Recipe Adjustment

A muffin recipe calls for 2¼ cups of flour to make 18 muffins. How much flour is needed to make 30 muffins?

Problem 38: Time Zone Calculations

If it's 3:30 PM in London, what time is it in Sydney, Australia? (Sydney is 11 hours ahead of London, but consider that it might be the next day.)

Problem 39: Shopping Budget

Emma has £150 to spend on clothes. She buys 2 pairs of jeans at £32.50 each, 3 t-shirts at £18.75 each, and 1 jacket at £45.60. How much money does she have left?

Problem 40: Data Analysis

The heights (in cm) of 10 students are: 142, 156, 148, 163, 151, 159, 145, 167, 154, 149. What is the range, median, and mean height of these students?

Problem 41: Packaging Problem

Small boxes measure 8 cm × 6 cm × 4 cm. How many of these boxes can fit in a larger box that measures 24 cm × 18 cm × 16 cm?

Problem 42: Swimming Pool Fill Rate

A swimming pool can be filled by one pipe in 8 hours and by another pipe in 12 hours. If both pipes work together, how long will it take to fill the pool?

Problem 43: Currency Exchange

The exchange rate is £1 = €1.15. If Tom exchanges £200 for euros and then exchanges €138 back to pounds (using the same rate), how much money does he lose due to the exchange?

Problem 44: Geometric Sequence

A bacteria culture doubles every 3 hours. If there are initially 500 bacteria, how many bacteria will there be after 15 hours?

Problem 45: Electricity Bill Calculation

An electricity company charges 15p per unit for the first 100 units and 12p per unit for any additional units. If a household uses 185 units in a month, what is their electricity bill?

Problem 46: Mixture Problem

A fruit punch recipe calls for mixing orange juice and lemonade in the ratio 3:2. If you want to make 15 litres of punch, how much orange juice and how much lemonade do you need?

Problem 47: Coordinate Geometry

Point A is at coordinates (2, 5) and point B is at coordinates (8, 13). What is the distance between these two points?

Problem 48: Work Rate Problem

If 6 people can paint a fence in 4 hours, how long would it take 8 people to paint the same fence, assuming everyone works at the same rate?

Problem 49: Compound Interest

£1,000 is invested at 5% compound interest per year. What will be the total amount after 3 years?

Problem 50: Final Challenge - Multi-step Problem

A school is organising a sponsored walk. Each student needs to find sponsors who will pay £2.50 per kilometre walked. The walk is 8 kilometres long. If there are 180 students participating and the average student finds 12 sponsors, how much money will the school raise? If 15% of this amount goes to administration costs, how much will go to the chosen charity?

Answer Key

Problems 1-25	Problems 26-50
1. £815.75	**26.** £54
2. £57.40	**27.** £0.1125 per km
3. 784 m²	**28.** 82%
4. Yes, she will use 15.8 GB	**29.** 1.5 books (round to 2)
5. Yes, he'll read 1,232 pages	**30.** 12 metres
6. Saves £12.60, pays £71.40	**31.** 6,300 adult, 2,200 child
7. 4 hours 21 minutes	**32.** 21.98 m²
8. 7 pieces	**33.** £560

9. £37.50

10. £295.26

11. 180 students

12. £572.83

13. 525g flour, 300g sugar, 225g butter

14. 4 hours 40 minutes

15. 21°C

16. 58,875 litres

17. 50%

18. Exceeded by £37.50

19. 1 pencil each

20. 10 months

21. 8m × 12m

22. 25.92 km

23. £1,581, profit £181

24. 17:18

25. 45°, 45°, 90°

34. 41 points, 68.3%

35. £1,250

36. 87.5 km

37. 3¾ cups

38. 2:30 AM (next day)

39. £6.15

40. Range: 25cm, Median: 152.5cm, Mean: 153.4cm

41. 54 boxes

42. 4.8 hours

43. £80

44. 16,000 bacteria

45. £25.20

46. 9L orange juice, 6L lemonade

47. 10 units

48. 3 hours

49. £1,157.63

50. £43,200 raised, £36,720 to charity