

Discounts: non-calculator worksheet

Nello's department store is having a sale. Calculate the discount and the sale price of each of these items. Try to do this worksheet without using a calculator.

Sale item and original price	Percentage discount	Discount	What I will pay
Radio \$30	10%		
Dress \$57	10%		
Joggers \$90	5%		
Book \$20	5%		
Tennis racquet \$180	20%		
Surfboard \$450	20%		
Bicycle \$370	5%		
CD \$21	10%		
Rug \$790	20%		
Garbage tin \$5	10%		
Calculator \$25	5%		
Heater \$47	20%		
Jeans \$79	5%		
Soccer boots \$75.30	20%		
Skateboard \$235.50	10%		
Rollerblades \$126.40	50%		
Toaster \$45.50	10%		
Computer \$2300	20%		
Digital TV \$6000	20%		
CD player \$210	5%		

14 Complete this table.

Percentage	Equivalent fraction	Equivalent decimal
150%	$1\frac{1}{2}$	1.5
a	$\frac{1}{5}$	b
c	d	0.25
e	f	0.75
g	$2\frac{1}{2}$	h
100%	i	j

Non-calculator strategies and percentages

Some percentages are easy to calculate without a calculator. The trick is to remember that a percentage means 'the number for every hundred'.

cd
teacher's
resource

2.4
Further
percentages:
worksheet

Example 8

What is 5% of 400?

Solution 8

5% means 5 for every hundred. There are 4 hundreds in 400.

$$\begin{aligned} 5\% \text{ of } 400 &= 5 \times 4 \\ &= 20 \end{aligned}$$

Did you know?

In a lion pack the female lions do over 90% of the hunting for food. Males are afraid of getting hurt!

Exercise 2:4

Complete this worksheet without using a calculator.

1 How many hundreds are there in each of the following amounts?

- a 700 b 800 c 200 d 350
e 1200 f 1800 g 1650 h 750

2 Calculate these amounts.

- a 5% of 600 b 5% of 800 c 2% of 300
d 3% of 500 e 7% of 1000 f 1.5% of 400

3 What are these amounts?

- a 6% of \$200 b 12% of \$200 c 8% of \$1
d 6% of \$2 e 4% of \$3 f 12% of \$8

4 Calculate these amounts.

- a 15% of 1 m b 10% of \$1.50 c 8% of 2.5 m

5 Lisa received a 10% discount when she bought a new dress worth \$200. How much did Lisa pay for the dress?

6 Little Lake Council will not approve a building application if the building covers more than 50% of the block of land. Jackie's block of land is 800 square metres. What is the floor area of the largest house the council will allow her to build on the land?

7 In 1900 the grey seal population in the Baltic Sea was 100 000. As a result of pollution, the seal population in 2002 was only 2% of the 1900 population. What was the seal population in 2002?



→Hint

In question 3, change small dollar amounts to cents.

Finding a percentage of an amount

Example 1

Find 12% of \$56.

Solution 1

$$12\% \text{ of } \$56 = \frac{12}{100} \times \$56 = \$6.72$$

On the calculator: 12 \div 100 \times 56 $=$

Example 2

Find $7\frac{1}{2}\%$ of \$60.

Solution 2

$$7\frac{1}{2}\% \text{ of } \$60 = \frac{7\frac{1}{2}}{100} \times \$60 = \$4.50$$

On the calculator: $7\frac{1}{2}$ \div 100 \times 60 $=$

Exercise 2:1

1 Find the following amounts.

- | | | |
|----------------|---------------|-----------------|
| a 12% of 125 | b 13% of 65 | c 50% of 46 |
| d 80% of 40 | e 33% of 96 | f 7.5% of 320 |
| g 2.5% of 26 | h 12% of 68 | i 3% of 70 |
| j 10% of 80 | k 100% of 63 | l 125% of 70 |
| m 200% of 27 | n 150% of 400 | o 1000% of 500 |
| p 300% of \$20 | q 25% of \$70 | r 0.5% of \$400 |

2 It rained on 25% of the 12 days Kelly was in Fiji.

- On how many days did it rain when Kelly was in Fiji?
- How many fine days did Kelly have in Fiji?

3 Grant's weekly take-home pay is \$240. Each week his transport to work costs 15% of his take-home pay. How much does it cost each week for his transport to work?

4 When 700 employees were interviewed about proposed changes in the company flexitime policy, 65% said that they were in favour of the changes.

- How many employees were in favour of the changes?
- What percentage of the employees were not in favour of the changes?

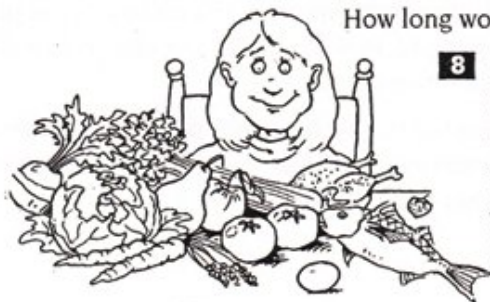
5 Alan scored 80% in a TAFE exam. There were 40 questions worth 2 marks each in the test. How many questions did Alan get right?

6 A carpenter ordered 280 nails to complete a job. When she opened the packet she found that 15% of the nails were defective. How many defective nails were there?

7 It took an apprentice 72 minutes to replace a broken kitchen cupboard. A qualified tradesman could have done the job in 75% of the time. How long would it have taken a qualified tradesman to do the job?

8 Kirrily is a dancer with a ballet company. Because the director told her that she was getting too fat, Kirrily went on a diet. Before the diet she weighed 65 kg and during the diet she lost 12% of her body weight.

- How much weight did Kirrily lose?
- What did Kirrily weigh after she finished her diet?



Increasing and decreasing a quantity by a percentage

Example 3

Increase \$70 by 20%.

Solution 3

$$\begin{aligned}\text{Increase} &= \frac{20}{100} \times \$70 \\ &= \$14 \\ \text{New amount} &= \$70 + \$14 \\ &= \$84\end{aligned}$$

Example 4

Decrease \$45 by 30%.

Solution 4

$$\begin{aligned}\text{Decrease} &= \frac{30}{100} \times \$45 \\ &= \$13.5 \text{ which is } \$13.50 \\ \text{New amount} &= \$45 - \$13.50 \\ &= \$31.50\end{aligned}$$

Exercise 2:2

- Calculate the following amounts.
 - \$80 is increased by 20%.
 - \$75 is increased by 15%.
 - \$300 is decreased by 40%.
 - \$120 is decreased by 18.5%.
 - \$12 is increased by 4%.
 - Decrease \$64 by 1%.
 - Increase \$18 by 2%.
 - Decrease \$5 by 3.2%.
- Last week the price of a movie ticket was \$15. Yesterday the price increased by 10%. How much does a movie ticket cost today?
- Phoebe receives a 5% staff discount at the supermarket where she works. How much will Phoebe have to pay for a food trolley normally costing \$75?
- The price of a new car was \$24 000. The manager of the car yard gives commercial customers a 3% discount. How much will a commercial customer have to pay to buy the new car?
- Lisa's family doctor gives patients who pay cash at the time of the consultation a 10% discount. The bill for Lisa's consultation is \$29. How much will she have to pay if she pays cash at the time of consultation?
- Aaron usually studies for 12 hours per week. In the week before his TAFE exams he increased his normal study time by 25%. How many hours did Aaron study in the week before his TAFE exams?
- The local bookshop gives apprentices a 15% discount. The price on the book Chris bought was \$32. How much was she charged for the book after she showed her apprentice's card?
- Chantelle's boss decided to give her a 10% pay rise because she had increased her productivity on the job. Her previous pay rate was \$8.60 per hour. Calculate her new pay rate.

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