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11. Which Costs Less: UPS or Australia Post?

Imagine that you are packing your suitcase to spend your summer holidays with your grandparents in Brisbane. As you pack, it becomes obvious that you will not have enough space for all your stuff. You decide to send some items. Of course, you want to send the packages for the least amount of money. Examine the shipping costs listed below in Table 1 for United Parcel Service (UPS) and Australia Post (Australian Postal Service). Then answer the questions that follow.

Delivery Costs for UPS and Australia Post (Table 1)

Package size (kg.)	UPS			Australia Post		
	4-day delivery	2-day delivery	Overnight delivery	4-day delivery	2-day delivery	Overnight delivery
5	\$18.95	\$55.22	\$81.08	\$23.70	\$50.95	\$75.70
10	\$25.40	\$90.18	\$130.43	\$29.70	\$80.45	\$101.20
20	\$49.80	\$129.53	\$212.98	\$48.70	\$120.45	\$186.20

1. If you have a 5-kg package that has to be sent overnight, which delivery method is less expensive, and how much does it cost?
2. If you have a 20-kg package that must arrive in 2 days, which shipping method is less expensive, and how much does it cost?
3. You have a 10-kg package that can arrive in 4 days. Which shipping method is less expensive, and how much does it cost?

17. TV Time

Context

entertainment

Topic

percentage of a number

Overview

In this activity, students construct circle graphs, based on given data and data collected while watching television.

Objectives

Students will be able to:

- find percentage of a number
- construct circle graphs

Materials

- one copy of the Activity 17 handout for each student
- protractors
- stopwatch/timer

Teaching Notes

- This activity works best for individual students.
- When making circle graphs, students often have difficulty visualising that 360 degrees of a circle equals 100% of that circle. Students may see this relationship more clearly if you demonstrate changing a familiar amount, such as 25%, to degrees before students attempt it on their own.

- Emphasise that students must follow each step carefully when constructing their circles.
- Have students make all their calculations prior to drawing any sectors on their circles.
- Make sure that students draw the first sector with the protractor edge on zero degrees. Then they should draw subsequent sectors using the “top” of the sector as the zero degree line.
- Have students watch network programming when they collect their data, and have them avoid premium channels, pay-per-view channels and so forth.

Answers

Answers will vary according to students' data.

Extension Activity

After students construct their circle graphs by hand, use a spreadsheet program to compare how the graphs look.

Percentage of Increase/Decrease

24. CDs

Context

entertainment

Topic

percentage of increase/decrease

Overview

In this activity, students make forecasts about manufacturing levels using percentage of increase and decrease.

Objectives

Students will be able to:

- find the percentage of increase and decrease
- use available information to make accurate predictions

Materials

- one copy of the Activity 24 handout for each student

Teaching Notes

- Students can work individually, in pairs or in small groups.
- In the table, students can indicate which percentage changes represent decreases by using a negative sign in front of the percentage or brackets like these: $<$ $>$.
- Some students may need help making the connection between knowing data trends and making predictions.

Answers

See the table below. Other answers will vary depending on students' predictions.

Extension Activity

Extend the production forecasts over the next several years.

CD	2006	2007	% change 2006 –2007	2008	% change 2007 –2008	2009	% change 2008 –2009	2010	% change 2009 –2010
Type 1	407.5	495.4	21.57	662.1	33.65	722.9	9.18	778.9	7.75
Type 2	366.4	339.5	–7.34	345.4	1.74	272.6	–21.08	225.3	–17.35
Type 3	2.3	1.2	–48.7	1.9	58.33	2.2	15.79	2.9	31.82