

6-3 Using the Percent Equation

Solve each problem using a percent equation.

1. What is 40% of 75?

SOLUTION:

The percent is 40% and the whole is 75. Let a represent the part.

Part = Percent • Whole

$$\begin{aligned} a &= 0.40 \cdot 75 \\ &= 30 \end{aligned}$$

So, 30 is 40% of 75.

2. Find 13% of 27.

SOLUTION:

The percent is 13% and the whole is 27. Let a represent the part.

Part = Percent • Whole

$$\begin{aligned} a &= 0.13 \cdot 27 \\ &= 3.51 \end{aligned}$$

So, 3.51 is 13% of 27.

3. 30 is what percent of 90?

SOLUTION:

The whole is 90 and the part is 30. Let p represent the percent.

Part = Percent • Whole

$$\begin{aligned} 30 &= p \cdot 90 \\ \frac{30}{90} &= \frac{90p}{90} \\ 0.\overline{33} &= p \end{aligned}$$

Since $0.\overline{33} = 33\frac{1}{3}\%$, 30 is $33\frac{1}{3}\%$ of 90.

4. 15 is what percent of 300?

SOLUTION:

The whole is 300 and the part is 15. Let p represent the percent.

Part = Percent • Whole

$$\begin{aligned} 15 &= p \cdot 300 \\ \frac{15}{300} &= \frac{300p}{300} \\ 0.05 &= p \end{aligned}$$

Since $0.05 = 5\%$, 15 is 5% of 300.

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5. 55 is 20% of what number?

SOLUTION:

The part is 55, and the percent is 20%. Let b represent the whole.

$$\text{Part} = \text{Percent} \cdot \text{Whole}$$

$$55 = 0.20 \cdot b$$

$$\frac{55}{0.20} = \frac{0.20b}{0.20}$$

$$275 = b$$

So, 55 is 20% of 275.

6. 24 is 80% of what number?

SOLUTION:

The part is 24, and the percent is 80%. Let b represent the whole.

$$\text{Part} = \text{Percent} \cdot \text{Whole}$$

$$24 = 0.80 \cdot b$$

$$\frac{24}{0.80} = \frac{0.80b}{0.80}$$

$$30 = b$$

So, 24 is 80% of 30.

7. Last year, Kimberly sold 95 boxes of cookies. This year she wants to sell 20% more boxes than she sold last year. How many boxes will Kimberly have to sell this year to reach her goal?

SOLUTION:

The percent is 20% and the whole is 95. Find the part to find how many additional boxes Kimberly needs to sell.

$$\text{Part} = \text{Percent} \cdot \text{Whole}$$

$$a = 0.20 \cdot 95$$

$$= 19$$

So, 19 is 20% of 95

$$95 + 19 = 114$$

Kimberly needs to sell 114 boxes this year to reach her goal.

8. Martin wants to buy a motor scooter. The cost of a motor scooter is \$4968. If the total, including tax, is \$5290.92, what is the percent of sales tax?

SOLUTION:

The tax is $\$5290.92 - \4968 or $\$322.92$.

$$\text{Part} = \text{Percent} \cdot \text{Whole}$$

$$322.92 = p \cdot 4968$$

$$\frac{322.92}{4968} = \frac{4968p}{4968}$$

$$0.065 = p$$

Since $0.065 = 6.5\%$, the percent of sales tax is 6.5%.

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Solve each problem using a percent equation.

9. Find 16% of 64.

SOLUTION:

The percent is 16% and the whole is 64. Let a represent the part.

Part = Percent • Whole

$$\begin{aligned} a &= 0.16 \cdot 64 \\ &= 10.24 \end{aligned}$$

So, 10.24 is 16% of 64.

10. What is 36% of 50?

SOLUTION:

The percent is 36% and the whole is 50. Let a represent the part.

Part = Percent • Whole

$$\begin{aligned} a &= 0.36 \cdot 50 \\ &= 18 \end{aligned}$$

So, 18 is 36% of 50.

11. 8 is what percent of 40?

SOLUTION:

The whole is 40 and the part is 8. Let p represent the percent.

Part = Percent • Whole

$$\begin{aligned} 8 &= p \cdot 40 \\ \frac{8}{40} &= \frac{40p}{40} \\ 0.2 &= p \end{aligned}$$

Since $0.2 = 20\%$, 8 is 20% of 40.

12. 54 is what percent of 60?

SOLUTION:

The whole is 60 and the part is 54. Let p represent the percent.

Part = Percent • Whole

$$\begin{aligned} 54 &= p \cdot 60 \\ \frac{54}{60} &= \frac{60p}{60} \\ 0.9 &= p \end{aligned}$$

Since $0.9 = 90\%$, 54 is 90% of 60.

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13. 16 is 25% of what number?

SOLUTION:

The part is 16, and the percent is 25%. Let b represent the whole.

Part = Percent • Whole

$$16 = 0.25 \cdot b$$

$$\frac{16}{0.25} = \frac{0.25b}{0.25}$$

$$64 = b$$

So, 16 is 25% of 64.

14. 64 is 32% of what number?

SOLUTION:

The part is 64, and the percent is 32%. Let b represent the whole.

Part = Percent • Whole

$$64 = 0.32 \cdot b$$

$$\frac{64}{0.32} = \frac{0.32b}{0.32}$$

$$200 = b$$

So, 64 is 32% of 200.

15. 39 is 50% of what number?

SOLUTION:

The part is 39, and the percent is 50%. Let b represent the whole.

Part = Percent • Whole

$$39 = 0.50 \cdot b$$

$$\frac{39}{0.50} = \frac{0.50b}{0.50}$$

$$78 = b$$

So, 39 is 50% of 78.

16. 27 is 10% of what number?

SOLUTION:

The part is 27, and the percent is 10%. Let b represent the whole.

Part = Percent • Whole

$$27 = 0.10 \cdot b$$

$$\frac{27}{0.10} = \frac{0.10b}{0.10}$$

$$270 = b$$

So, 27 is 10% of 270.

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17. A commission is a fee paid to a salesperson based on a percent of sales. Suppose a salesperson at a jewelry store earns a 6% commission. What commission would be earned for selling a ring that costs \$1300 dollars?

SOLUTION:

The percent is 6% and the whole is 1300. Find the part to find the commission earned.

Part = Percent • Whole

$$\begin{aligned}a &= 0.06 \cdot 1300 \\ &= 78\end{aligned}$$

So, 78 is 6% of 1300

The commission earned for selling a ring that costs \$1300 is \$78.

18. Roberto wants to buy a new ski jacket that costs \$96. If the total cost, including tax, is \$101.28, what is the percent of sales tax?

SOLUTION:

The tax is \$101.28 – \$96 or \$5.28.

Part = Percent • Whole

$$5.28 = p \cdot 96$$

$$\frac{5.28}{96} = \frac{96p}{96}$$

$$0.055 = p$$

Since $0.055 = 5.5\%$, the percent of sales tax is 5.5%.

Solve each problem using a percent equation.

19. Find 52.5% of 76.

SOLUTION:

The percent is 52.5% and the whole is 76. Let a represent the part.

Part = Percent • Whole

$$\begin{aligned}a &= 0.525 \cdot 76 \\ &= 39.9\end{aligned}$$

So, 39.9 is 52.5% of 76.

20. Find 23.6% of 90.

SOLUTION:

The percent is 23.6% and the whole is 90. Let a represent the part.

Part = Percent • Whole

$$\begin{aligned}a &= 0.236 \cdot 90 \\ &= 21.24\end{aligned}$$

So, 21.24 is 23.6% of 90.

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21. 33.8 is what percent of 130?

SOLUTION:

The whole is 130 and the part is 33.8. Let p represent the percent.

$$\text{Part} = \text{Percent} \cdot \text{Whole}$$

$$33.8 = p \cdot 130$$

$$\frac{33.8}{130} = \frac{130p}{130}$$

$$0.26 = p$$

Since $0.26 = 26\%$, 33.8 is 26% of 130.

22. 79.8 is what percent of 114?

SOLUTION:

The whole is 114 and the part is 79.8. Let p represent the percent.

$$\text{Part} = \text{Percent} \cdot \text{Whole}$$

$$79.8 = p \cdot 114$$

$$\frac{79.8}{114} = \frac{114p}{114}$$

$$0.7 = p$$

Since $0.7 = 70\%$, 79.8 is 70% of 114.

23. **Financial Literacy** The cost, including a 6.75% sales tax, of a digital home theater system with a 40-inch high definition television is \$2668.75. What is the original cost of the television and theater system?

SOLUTION:

The total percent is $100\% + 6.75\%$ or 106.75% .

$$106.75\% = 1.0675$$

Let b represent the original cost of the system.

$$2668.75 = 1.0675 \cdot b$$

$$\frac{2668.75}{1.0675} = \frac{1.0675b}{1.0675}$$

$$2500 = b$$

So, the original cost of the television and theater system is \$2500.

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24. The results of a Wimbledon Women's Championship match is shown in the table.

	Marion Bartoli	Venus Williams
1st Serves In	40 of 63	35 of 50
Receiving Points Won	16 of 50	30 of 63
Break Point Conversions	1 of 2	4 of 10
Net Approaches	3 of 6	12 of 17

- What was Bartoli's percent of receiving points won?
- Which player had a greater percent of their first serves in?
- Suppose in Williams' next match she has 16 break point opportunities. Based on this match, how many times will she convert on break point opportunities?

SOLUTION:

a. $\frac{16}{50} = 0.32$ or 32%

b. Bartoli: $\frac{40}{63} = 0.635$ or 63.5%;

Williams: $\frac{35}{50} = 0.70$ or 70%

Since 70% > 63.5%, Williams had a greater percent of first serves in.

- Convert 4 of 10 break point conversions to a percent.

$$\frac{4}{10} = \frac{p}{100}$$

$$4 \cdot 100 = 10 \cdot p$$

$$400 = 10p$$

$$\frac{400}{10} = \frac{10p}{10}$$

$$40 = p$$

The percent is 40, and the base is 16. Let a represent the part.

$$\frac{a}{16} = \frac{40}{100}$$

$$100 \cdot a = 16 \cdot 40$$

$$100a = 640$$

$$\frac{100a}{100} = \frac{640}{100}$$

$$a = 6.4$$

Since $6.4 \approx 6$, Williams will convert on break point opportunities about 6 times.

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25. A car museum wants to increase their collection by 20% over the next year. Currently, the museum has 120 cars in its collection.
- Write and solve a multiplication equation to find how many cars the museum will have in the next year. How many cars will the museum need to add over the next year to meet its goal?
 - Make a table to find the number of cars in the museum collection if they increase their collection by 5%, 15%, 25%, and 35%.

SOLUTION:

- Find $100\% + 20\%$ or 120% of 120 to find the number of cars the museum will have in the next year.

$$c = 1.2 \cdot 120$$

$$c = 144$$

The museum will have 144 cars in the next year. $144 - 120 = 24$, so the museum will need to add 24 cars over the next year.

b.

x (Total Percent)	y (Number of cars)
105% or 1.05	$1.05 \cdot 120 = 126$
115% or 1.15	$1.15 \cdot 120 = 138$
125% or 1.25	$1.25 \cdot 120 = 150$
135% or 1.35	$1.35 \cdot 120 = 162$

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26. The table shows the area of the Great Lakes.

Lake	Area (square miles)
Ontario	7320
Erie	9922
Michigan	22,316
Huron	23,011
Superior	31,698

- About what percent of the Great Lakes is covered by Lake Erie?
- About what percent of the Great Lakes is covered by Lake Huron?
- Suppose the area of Lake Michigan was decreased by 8%. Find its new area.

SOLUTION:

- a. The total area of the Great Lakes is $9922 + 23,011 + 22,316 + 7320 + 31,698 = 94,267 \text{ mi}^2$.

$$\frac{9922}{94,267} = 0.105$$

Lake Erie covers about 11% of the Great Lakes.

b.

$$\frac{23,011}{94,267} = 0.244$$

Lake Huron covers about 24% of the Great Lakes.

c.

$$\begin{aligned} a &= 0.08 \cdot 22,316 \\ &= 1785.28 \end{aligned}$$

$$22,316 - 1785.28 = 20,530.72$$

The new area of Lake Michigan is $20,530.72 \text{ mi}^2$.

6-3 Using the Percent Equation

27. **Multiple Representations** In this problem, you will investigate percent relationships. In 2010, Aida saved \$500. She plans to save 6% more than her previous' years savings for the next several years.

a. Symbols Write and solve a multiplication equation to find how much money she will save next year.

b. Table Let x represent the year and y represent the amount of money she has saved. Make a table using the x -values for 2010–2015.

c. Analyze Does Aida's savings increase by a constant amount each year? Explain.

SOLUTION:

a. The total percent is $100\% + 6\%$ or 106% .

$$106\% = 1.06$$

Let s represent the money Aida will save next year.

$$s = 1.06 \cdot 500$$

$$s = 530$$

Aida will save \$530 next year.

b.

x (Year)	y (Money saved)
2010	\$500
2011	$1.06 \cdot 500 = \$530$
2012	$1.06 \cdot 530 = \$561.80$
2013	$1.06 \cdot 561.80 = \$595.51$
2014	$1.06 \cdot 595.51 = \$631.24$
2015	$1.06 \cdot 631.24 = \$669.11$

c. No; the base amount is different each year so the part changes even though the percent remains constant.

Use the percent equation to solve each problem if $x = 10$.

28. $(2x)$ is 4% of what number?

SOLUTION:

The part is $(2x)$, and the percent is 4%. Let b represent the whole.

$$\text{Part} = \text{Percent} \cdot \text{Whole}$$

$$2x = 0.04 \cdot b$$

$$\frac{2(10)}{0.04} = \frac{0.04b}{0.04}$$

$$\frac{20}{0.04} = b$$

$$500 = b$$

So, $(2x)$ or 20 is 4% of 500.

29. Find $(4x)\%$ of 240.

SOLUTION:

The percent is $4 \cdot 10$ or 40% and the whole is 240. Let a represent the part.

$$\text{Part} = \text{Percent} \cdot \text{Whole}$$

$$a = 0.4 \cdot 240$$

$$= 96$$

So, 96 is $(4x)\%$ or 40% of 240.

6-3 Using the Percent Equation

30. **Identify Structure** Write two percent problems in which the solution is 30%.

SOLUTION:

Sample answer: A wheelbarrow is designed to hold 90 lb. It contains 27 lb of sand. How much of the weight capacity is being used? Kal is taking a trip of 180 miles. He has gone 54 miles. How much of his trip has he completed?

Let p represent the percent of the wheelbarrow's weight capacity that is being used.

$$27 = p \cdot 90$$

$$\frac{27}{90} = \frac{90p}{90}$$

$$0.3 = p$$

Since $0.3 = 30\%$, 30% of the wheelbarrow's weight capacity is being used.

Let p represent the percent of Kal's trip that he has completed.

$$54 = p \cdot 180$$

$$\frac{54}{180} = \frac{180p}{180}$$

$$0.3 = p$$

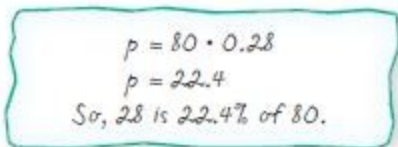
Since $0.3 = 30\%$, Kal has completed 30% of his trip.

31. **Persevere with Problems** If you found the percent of a number and the part is greater than the number, what do you know about the percent? Explain.

SOLUTION:

Sample answer: The percent is greater than 100% because otherwise the part would be less than or equal to the whole.

32. **Find the Error** Todd is finding what percent of 80 is 28. Find his mistake and correct it.



$p = 80 \cdot 0.28$
 $p = 22.4$
So, 28 is 22.4% of 80.

SOLUTION:

Todd found 28% of 80. He should have found the missing percent.

$$28 = 80p, p = 0.35 \text{ or } 35\%$$

33. **Justify Conclusions** Does taking a 10% discount on an item then adding a 10% sales tax result in the original price of the item? Support your answer with an example.

SOLUTION:

No; Suppose an item costs \$100. A 10% discount would be a discount of \$10, so the discounted price would be \$90. Adding a 10% sales tax adds \$9. So, the final price is \$90 + \$9 or \$99, not \$100.

34. **Building on the Essential Question** Write two different expressions to find the total cost of an item with a price \$ y if the sales tax is 8%. Explain why they give the same result.

SOLUTION:

$$y + 0.08y \text{ and } 1.08y; y + 0.08y \text{ is } 1y + 0.08y, \text{ which is } (1 + 0.08)y \text{ or } 1.08y$$

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35. Interest on a savings account is calculated every quarter of a year. During the first quarter, Alejandra earned \$54.84 in interest. This was 2% of her savings. How much was Alejandra's savings?

A	\$274.20
B	\$2742.00
C	\$5484.00
D	\$5593.68

SOLUTION:

The part is 54.84, and the percent is 2%. Let b represent the whole.

$$\text{Part} = \text{Percent} \cdot \text{Whole}$$

$$54.84 = 0.02 \cdot b$$

$$\frac{54.84}{0.02} = \frac{0.02b}{0.02}$$

$$2742 = b$$

Alejandra's savings was \$2742. Choice B is the correct answer.

36. A lawyer earns an annual salary of \$65,490 and receives a raise. The lawyer's new annual salary is \$68,109.60. About what percent of a raise did the lawyer receive?

F	3%
G	4%
H	5%
J	6%

SOLUTION:

The lawyer's raise is \$68,109.60 – \$65,490 or \$2619.60.

$$\text{Part} = \text{Percent} \cdot \text{Whole}$$

$$2619.60 = p \cdot 65,490$$

$$\frac{2619.60}{65,490} = \frac{65,490p}{65,490}$$

$$0.04 = p$$

Since $0.04 = 4\%$, the percent raise is 4%. Choice G is the correct answer.

6-3 Using the Percent Equation

37. The cost of Nate's dinner including a 15% tip was \$43.70. What was the cost of dinner alone?

A	\$38.00
B	\$37.50
C	\$5.70
D	\$4.30

SOLUTION:

The total percent is $100\% + 15\%$ or 115% .

$$115\% = 1.15$$

Let c represent the cost of dinner alone.

$$43.70 = 1.15 \cdot c$$

$$\frac{43.70}{1.15} = \frac{1.15c}{1.15}$$

$$38 = c$$

The cost of dinner alone was \$38. Choice A is the correct answer.

38. **Short Response** The table shows the capacity of two collegiate football stadiums. Suppose 75% of Ben-Hill Griffin Stadium is filled, and 73% of L.A. Coliseum is filled. Which stadium has a greater number of people in it? How many more people are in that stadium?

Stadium	Capacity
L.A. Coliseum	91,000
Ben-Hill Griffin	88,548

SOLUTION:

Ben-Hill Griffin:

$$a = 0.75 \cdot 88,548$$

$$= 66,411$$

L.A. Coliseum:

$$a = 0.73 \cdot 91,000$$

$$= 66,430$$

Since $66,430 > 66,411$, L.A. Coliseum has a greater number of people.

$$66,430 - 66,411 = 19$$

There are 19 more people in the L.A. Coliseum.

Find the percent of each number mentally.

39. 75% of 64

SOLUTION:

$$\begin{aligned} 75\% \text{ of } 64 &= \frac{3}{4} \text{ of } 64 \\ &= 48 \end{aligned}$$

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40. 25% of 52

SOLUTION:

$$\begin{aligned} 25\% \text{ of } 52 &= \frac{1}{4} \text{ of } 52 \\ &= 13 \end{aligned}$$

41. $33\frac{1}{3}\%$ of 27

SOLUTION:

$$\begin{aligned} 33\frac{1}{3}\% \text{ of } 27 &= \frac{1}{3} \text{ of } 27 \\ &= 9 \end{aligned}$$

42. Carbon makes up 18.5% of the human body by weight. Determine the amount of carbon in a person who weighs 145 pounds. Round to the nearest tenth.

SOLUTION:

The percent is 18.5% and the whole is 145. Find the part to determine the amount of carbon in a person who weighs 145 pounds.

Part = Percent • Whole

$$\begin{aligned} a &= 0.185 \cdot 145 \\ &= 26.825 \end{aligned}$$

26.825 is 18.5% of 145.

There are 26.8 pounds of carbon in a person who weighs 145 pounds.

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43. The Skyway Snack Company makes a snack mix that contains raisins, peanuts, and chocolate pieces as shown in the table below. Suppose the company wants to sell a larger-sized bag that contains 6 cups of raisins. How many cups of chocolate pieces and peanuts should be added?

Skyway's Snack Mix	
Ingredient	Amount (cups)
raisins	1
peanuts	$\frac{1}{2}$
chocolate pieces	$\frac{1}{3}$

SOLUTION:

Let x represent the number of cups of chocolate pieces in the larger-sized bag.

$$\frac{1}{6} = \frac{0.\bar{3}}{x}$$

$$1 \cdot x = 6 \cdot 0.\bar{3}$$

$$x = 2$$

2 cups of chocolate pieces should be added.

Let y represent the number of cups of peanuts in the larger-sized bag.

$$\frac{1}{6} = \frac{0.5}{y}$$

$$1 \cdot y = 6 \cdot 0.5$$

$$y = 3$$

3 cups of peanuts should be added.

Convert each rate using dimensional analysis.

44. 45 mi/h = _ ft/s

SOLUTION:

$$\begin{aligned} \frac{45 \cancel{\text{mi}}}{1 \cancel{\text{h}}} \cdot \frac{5280 \text{ ft}}{1 \cancel{\text{mi}}} \cdot \frac{1 \cancel{\text{h}}}{60 \cancel{\text{min}}} \cdot \frac{1 \cancel{\text{min}}}{60 \text{ sec}} &= \frac{45 \cdot 5280 \text{ feet}}{60 \cdot 60 \text{ sec}} \\ &= \frac{237,600 \text{ ft}}{3600 \text{ sec}} \\ &= \frac{66 \text{ ft}}{1 \text{ sec}} \end{aligned}$$

45. 18 mi/h = _ ft/s

SOLUTION:

$$\begin{aligned} \frac{18 \cancel{\text{mi}}}{1 \cancel{\text{h}}} \cdot \frac{5280 \text{ ft}}{1 \cancel{\text{mi}}} \cdot \frac{1 \cancel{\text{h}}}{60 \cancel{\text{min}}} \cdot \frac{1 \cancel{\text{min}}}{60 \text{ sec}} &= \frac{18 \cdot 5280 \text{ feet}}{60 \cdot 60 \text{ sec}} \\ &= \frac{95,040 \text{ feet}}{3600 \text{ sec}} \\ &= \frac{26.4 \text{ feet}}{1 \text{ sec}} \end{aligned}$$

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46. $26 \text{ cm/s} = _ \text{ m/min}$

SOLUTION:

$$\begin{aligned}\frac{26 \cancel{\text{cm}}}{1 \cancel{\text{sec}}} \cdot \frac{60 \cancel{\text{sec}}}{1 \text{ min}} \cdot \frac{1 \text{ m}}{100 \cancel{\text{cm}}} &= \frac{26 \cdot 60 \text{ m}}{100 \text{ min}} \\ &= \frac{1560 \text{ m}}{100 \text{ min}} \\ &= \frac{15.6 \text{ m}}{1 \text{ min}}\end{aligned}$$

47. $32 \text{ cm/s} = _ \text{ m/min}$

SOLUTION:

$$\begin{aligned}\frac{32 \cancel{\text{cm}}}{1 \cancel{\text{sec}}} \cdot \frac{60 \cancel{\text{sec}}}{1 \text{ min}} \cdot \frac{1 \text{ m}}{100 \cancel{\text{cm}}} &= \frac{32 \cdot 60 \text{ m}}{100 \text{ min}} \\ &= \frac{1920 \text{ m}}{100 \text{ min}} \\ &= \frac{19.2 \text{ m}}{1 \text{ min}}\end{aligned}$$

Write each expression using exponents.

48. $33 \cdot 33 \cdot 33 \cdot 33$

SOLUTION:

$$33 \cdot 33 \cdot 33 \cdot 33 = 33^4$$

49. $xy \cdot xy \cdot xy \cdot xy \cdot xy$

SOLUTION:

$$xy \cdot xy \cdot xy \cdot xy \cdot xy = (xy)^5 \text{ or } x^5y^5$$

50. $4 \cdot 25 \cdot a \cdot a \cdot a \cdot a \cdot b \cdot b$

SOLUTION:

$$4 \cdot 25 \cdot a \cdot a \cdot a \cdot a \cdot b \cdot b = 100a^4b^2 \text{ or } 2^5 \cdot 5^2 \cdot a^4b^2$$

51. $3(z - 8)(z - 8)(z - 8)(z - 8)$

SOLUTION:

$$3(z - 8)(z - 8)(z - 8)(z - 8) = 3(z - 8)^4$$

6-3 Using the Percent Equation

Find the constant of proportionality for each table.

52.

Spiders	5	10	15	20
Legs	40	80	120	160

SOLUTION:

Write the rate of legs to spiders for each column in the table. Simplify each fraction.

$$\frac{40}{5} = 8$$

$$\frac{80}{10} = 8$$

$$\frac{120}{15} = 8$$

$$\frac{160}{20} = 8$$

The constant of proportionality is 8.

53.

Targets hit	2	3	4	5
Points	90	135	180	225

SOLUTION:

Write the rate of points to target hits for each column in the table. Simplify each fraction.

$$\frac{90}{2} = 45$$

$$\frac{135}{3} = 45$$

$$\frac{180}{4} = 45$$

$$\frac{225}{5} = 45$$

The constant of proportionality is 45.

54. The record high temperature in Kentucky was 114°F in Greensburg in 1930. The record low temperature was -37°F in Shelbyville in 1994. What is the difference in these temperatures?

SOLUTION:

To find the difference, subtract the record low temperature from the record high temperature.

$$\begin{aligned} 114 - (-37) &= 114 + 37 \\ &= 151 \end{aligned}$$

The difference in these temperatures is 151°F .