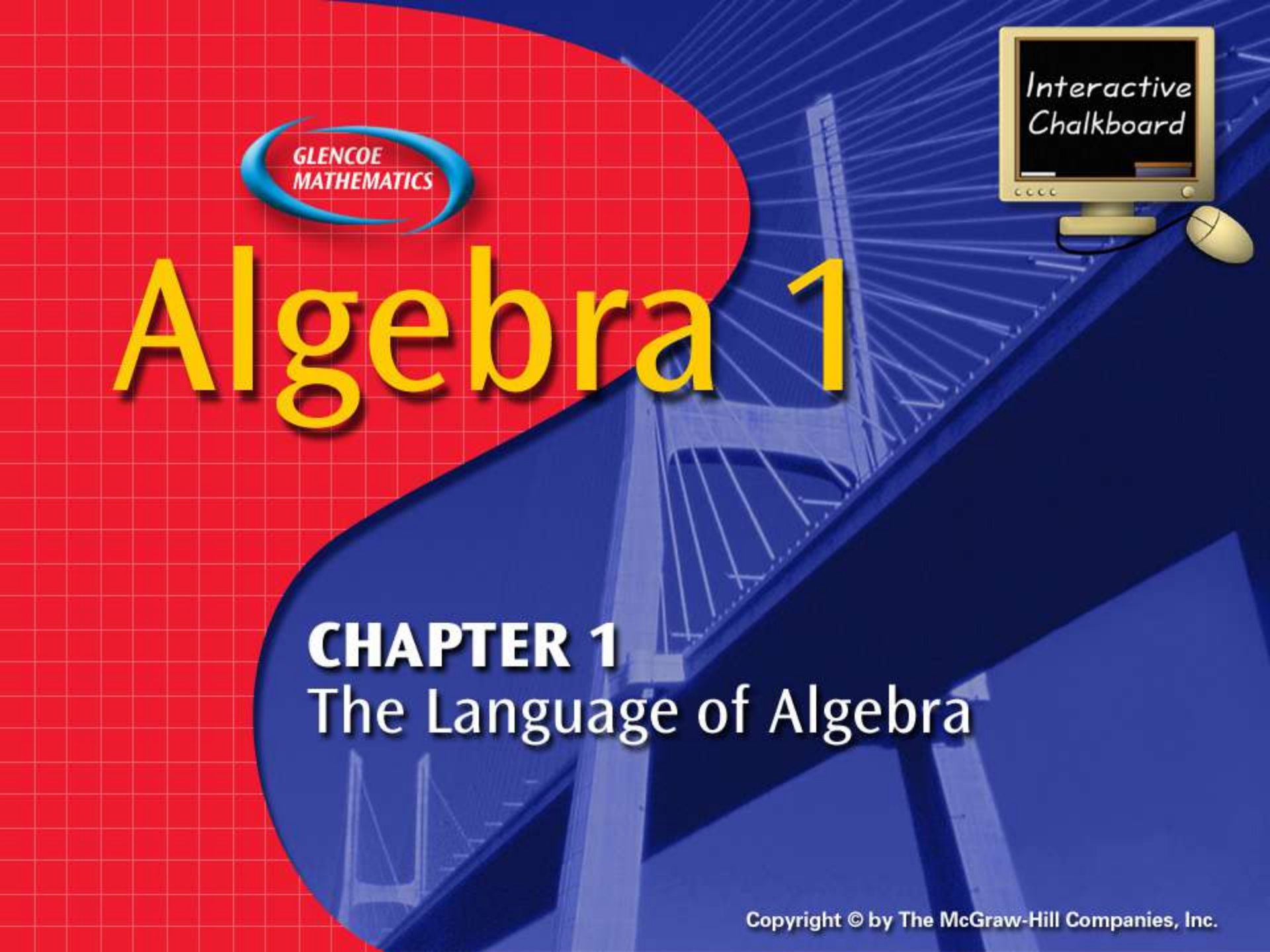


Algebra 1

CHAPTER 1
The Language of Algebra

Lesson 1-1 Contents

Example 1a

Write an algebraic expression for five less than a number c.

The words *less than* suggest subtraction.

a number c less five

$c - 5$

Answer: Thus, the algebraic expression is $c - 5$.

Example 1b

Write an algebraic expression for the sum of 9 and 2 times the number d.

Sum implies add, and *times* implies multiply.

Answer: The expression can be written as. $9 + 2d$

Example 1c

Write an algebraic expression for two thirds of the original volume v.

The word *of* implies multiply.

Answer: The expression can be written as $\frac{2}{3}v$.

End of slide

Your Turn

Write an algebraic expression for each verbal expression.

a. nine more than a number h

Answer: $9 + h$

b. the difference of 6 and 4 times a number x

Answer: $6 - 4x$

c. one half the size of the original perimeter p

Answer: $\frac{1}{2}p$

End of slide

Example 2a

Write the product of $\frac{3}{4}$ and a to the seventh power algebraically.

Answer: $\frac{3}{4}a^7$

Example 2b

Write the sum of 11 and x to the third power algebraically.

Answer: $11 + x^3$

End of slide

Your Turn

Write each expression algebraically.

a. the difference of 12 and x squared

Answer: $12 - x^2$

b. the quotient of 6 and x to the fifth power

Answer: $\frac{6}{x^5}$

End of slide

Example 3a

Evaluate. 3^4

$$3^4 = 3 \cdot 3 \cdot 3 \cdot 3$$

Use 3 as a factor 4 times.

Answer: $= 81$

Multiply.

End of slide

Example 3b

Evaluate. 8^2

$$8^2 = 8 \cdot 8$$

Use 8 as a factor 2 times.

Answer: $= 64$

Multiply.

End of slide

Your Turn

Evaluate each expression.

a. 5^4

Answer: 625

b. 2^5

Answer: 32

Example 4a

Write a verbal expression for $\frac{8x^2}{5}$.

Answer: the quotient of 8 times x squared and 5

Example 4b

Write a verbal expression for. $y^5 - 16y$

Answer: the difference of y to the fifth power and 16 times y

End of slide

Your Turn

Write a verbal expression for each algebraic expression.

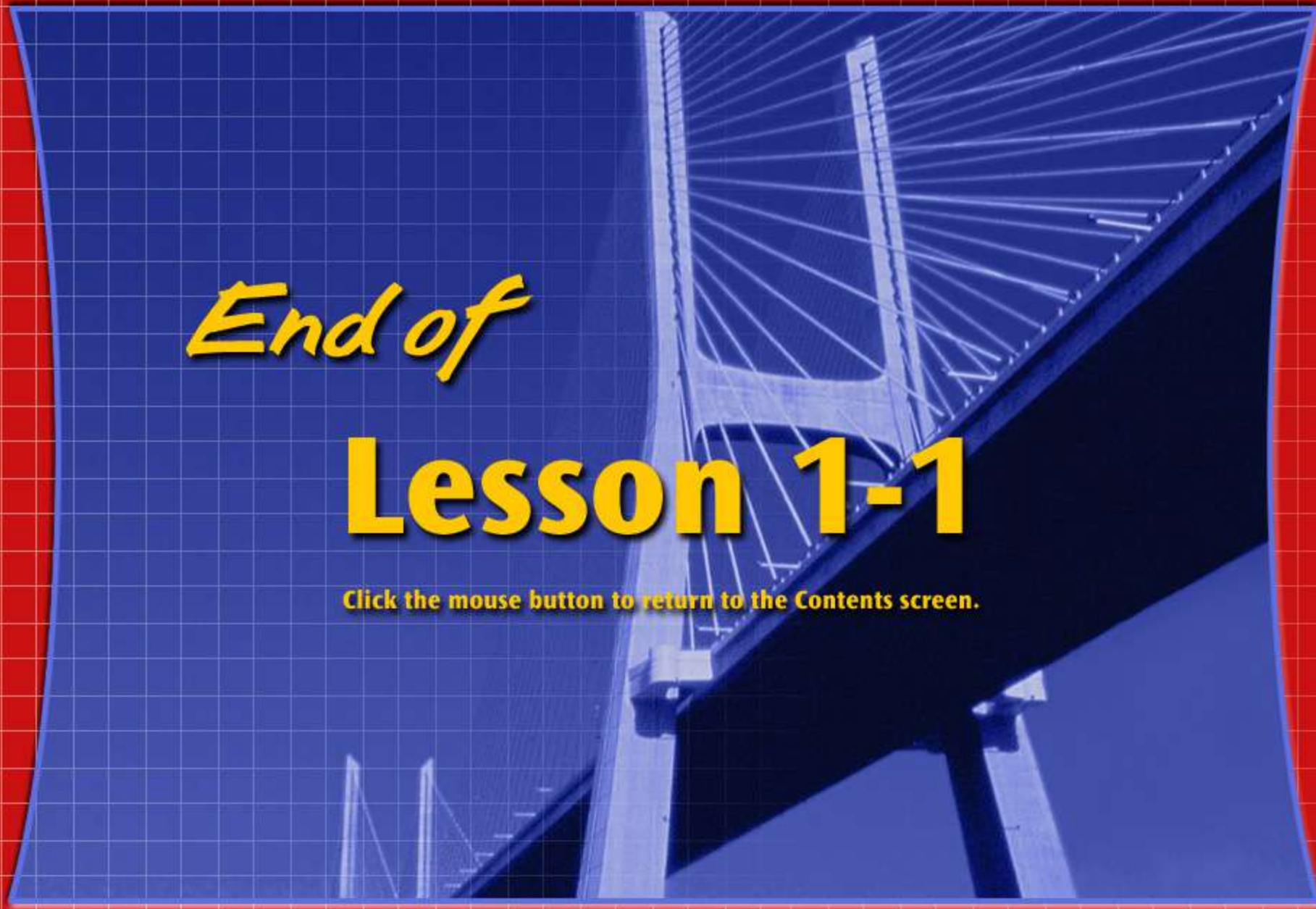
a. $7a^4$

Answer: 7 times a to the fourth power

b. $x^2 + 3$

Answer: the sum of x squared and 3

End of slide


End of
Lesson 1-1
Click the mouse button to return to the Contents screen.

Lesson 1-2 Contents

Example 1a

Evaluate $6 + 4 - 2 \cdot 3$.

$6 + 4 - 2 \cdot 3 = 6 + 4 - 6$ Multiply 2 and 3.

$= 10 - 6$ Add 6 and 4.

Answer: $= 4$ Subtract 10 and 6.

End of slide

Example 1b

Evaluate $48 \div 2^3 \cdot 3 + 5$.

$48 \div 2^3 \cdot 3 + 5 = 48 \div 8 \cdot 3 + 5$ Evaluate powers.

$= 6 \cdot 3 + 5$ Divide 48 by 8.

$= 18 + 5$ Multiply 6 and 3.

Answer: $= 23$ Add 18 and 5.

End of slide

Your Turn

Evaluate each expression.

a. $18 + 2 \cdot 4 - 3$

Answer: 23

b. $3 + 6^2 \div 4 - 5$

Answer: 7

End of slide

Example 2a

Evaluate. $(8-3)\cdot 3(3+2)$

$(8-3)\cdot 3(3+2) = 5\cdot 3(5)$ Evaluate inside grouping symbols.

$= 15(5)$ Multiply.

Answer: $= 75$ Multiply.

End of slide

Example 2b

Evaluate. $4[12 \div (6 - 2)]^2$

$4[12 \div (6 - 2)]^2 = 4(12 \div 4)^2$ Evaluate innermost expression first.

$= 4(3)^2$ Evaluate expression in grouping symbols.

$= 4(9)$ Evaluate power.

$= 36$ Multiply.

Answer:

End of slide

Your Turn

Evaluate each expression.

a. $2(4+7)\cdot(9-5)$

Answer: 88

b. $3[5-2\cdot2]^2$

Answer: 3

Example 3

Evaluate $\dfrac{2^5 - 6 \cdot 2}{3^3 - 5 \cdot 3 - 2}$.

$\dfrac{2^5 - 6 \cdot 2}{3^3 - 5 \cdot 3 - 2}$ means $(2^5 - 6 \cdot 2) \div (3^3 - 5 \cdot 3 - 2)$.

$$\frac{2^5 - 6 \cdot 2}{3^3 - 5 \cdot 3 - 2} = \frac{32 - 6 \cdot 2}{3^3 - 5 \cdot 3 - 2}$$

Evaluate the power in the numerator.

$$= \frac{32 - 12}{3^3 - 5 \cdot 3 - 2}$$

Multiply 6 and 2 in the numerator.

$$= \frac{20}{3^3 - 5 \cdot 3 - 2}$$

Subtract 32 and 12 in the numerator.

End of slide—
continued on
the next slide

Example 3

$$= \frac{20}{27 - 5 \cdot 3 - 2}$$

Evaluate the power in the denominator.

$$= \frac{20}{27 - 15 - 2}$$

Multiply 5 and 3 in the denominator.

Answer:

$$= \frac{20}{10} \text{ or } 2$$

Subtract from left to right in the denominator. Then simplify.

End of slide

Your Turn

Evaluate $\dfrac{3^3 - 4 \cdot 3}{2^5 - 5 \cdot 3 - 2}$.

Answer: 1

End of slide

Example 4

Evaluate $2(x^2 - y) + z^2$ **if** $x = 4$, $y = 3$, **and** $z = 2$.

$$2(x^2 - y) + z^2 = 2(4^2 - 3) + 2^2$$

Replace x with 4, y with 3 and z with 2.

$$= 2(16 - 3) + 2^2$$

Evaluate. 4^2

$$= 2(13) + 2^2$$

Subtract 16 and 3.

$$= 2(13) + 4$$

Evaluate 2^2.

$$= 26 + 4$$

Multiply 2 and 13.

Answer: $= 30$

Add.

End of slide

Your Turn

Evaluate. $x^3 - y^3 + z$, **if** $x = 3$, $y = 2$, **and** $z = 5$

Answer: 24

End of slide

Example 5a

Architecture Each of the four sides of the Great Pyramid at Giza, Egypt, is a triangle. The base of each triangle originally measured 230 meters. The height of each triangle originally measured 187 meters. The area of any triangle is one-half the product of the length of the base b and the height h.

Write an expression that represents the area of one side of the Great Pyramid.

one half of the product of length of base and height

$\frac{1}{2}$ • $b \cdot h$

Answer: $\frac{1}{2}bh$

End of slide

Example 5b

Find the area of one side of the Great Pyramid.

Evaluate $\frac{1}{2}bh$ for $b = 230$ and $h = 187$.

$\frac{1}{2}bh = \frac{1}{2}(230 \cdot 187)$ $b = 230$ and $h = 187$

$= \frac{1}{2}(43,010)$ Multiply 230 by 187.

$= \frac{43,010}{2}$ Multiply $\frac{1}{2}$ by $43,010$.

$= 21,505$ Divide $43,010$ by 2.

Answer: The area of one side of the Great Pyramid is $21,505$ m^2.

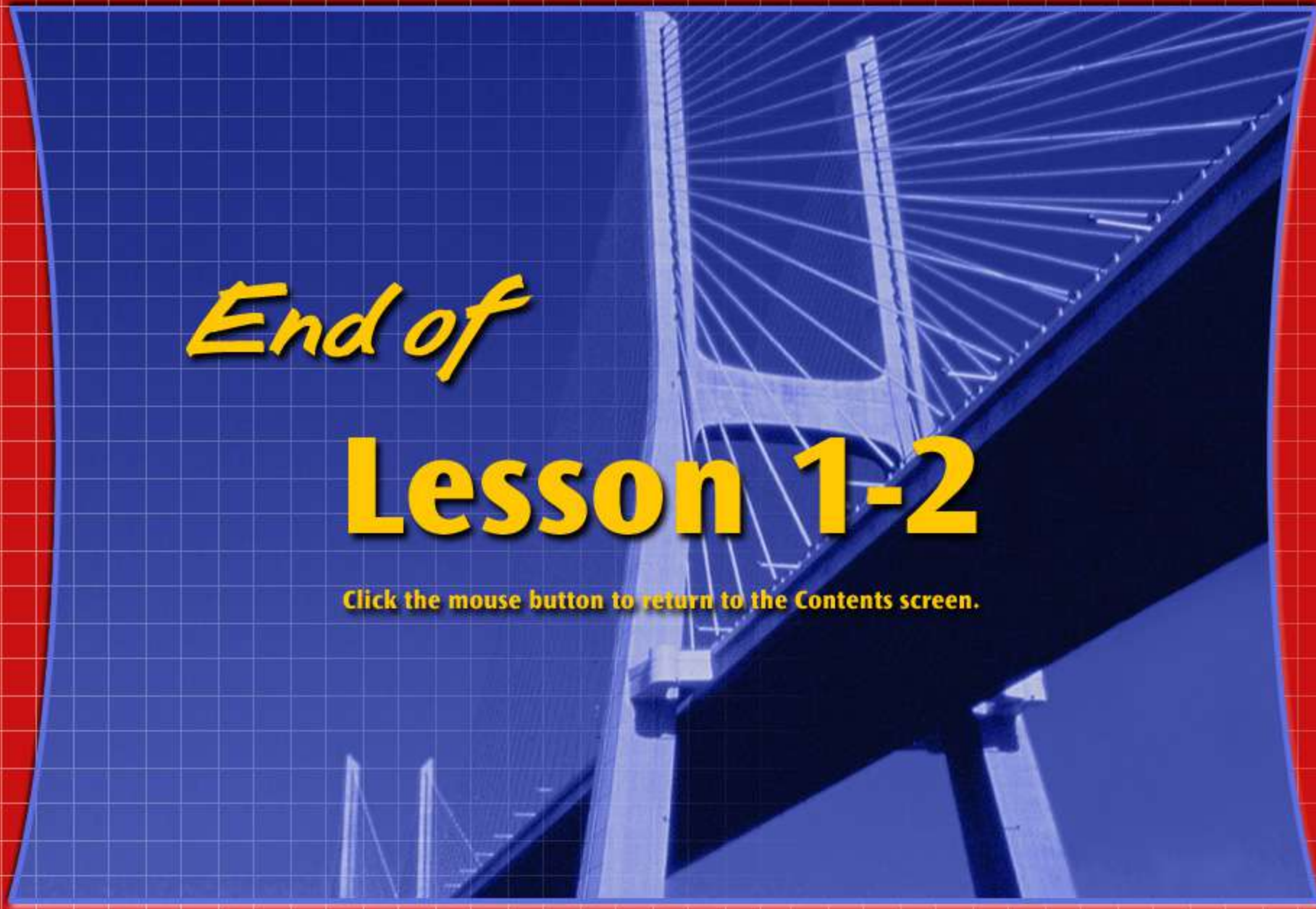
End of slide

Your Turn

Find the area of a triangle with a base of 123 feet and a height of 62 feet.

Answer: 3813 ft^2

End of slide


End of
Lesson 1-2
Click the mouse button to return to the Contents screen.

Lesson 1-3 Contents

Example 1a

Find the solution set for if the replacement set is $\{2, 3, 4, 5, 6\}$.

$$4a + 7 = 23$$

Replace a in with each value in the replacement set.

a	$4a + 7 = 23$	True or False?
2	$4(2) + 7 \stackrel{?}{=} 23 \rightarrow 15 \neq 23$	false
3	$4(3) + 7 \stackrel{?}{=} 23 \rightarrow 19 \neq 23$	false
4	$4(4) + 7 \stackrel{?}{=} 23 \rightarrow 23 = 23$	true ✓
5	$4(5) + 7 \stackrel{?}{=} 23 \rightarrow 27 \neq 23$	false
6	$4(6) + 7 \stackrel{?}{=} 23 \rightarrow 31 \neq 23$	false

Answer: The solution set is $\{4\}$.

End of slide

Example 1b

Find the solution set for if the replacement set is $\{2, 3, 4, 5, 6\}$.

$3(8-b)=6$

Replace b in $3(8-b)=6$ with each value in the replacement set.

b	$3(8-b)=6$	True or False?
2	$3(8-2) \stackrel{?}{=} 6 \rightarrow 18 \neq 6$	false
3	$3(8-3) \stackrel{?}{=} 6 \rightarrow 15 \neq 6$	false
4	$3(8-4) \stackrel{?}{=} 6 \rightarrow 12 \neq 6$	false
5	$3(8-5) \stackrel{?}{=} 6 \rightarrow 9 \neq 6$	false
6	$3(8-6) \stackrel{?}{=} 6 \rightarrow 6 = 6$	true ✓

Answer: The solution set is $\{6\}$.

End of slide

Your Turn

Find the solution set for each equation if the replacement set is $\{0, 1, 2, 3, 4\}$.

a. $6c - 5 = 7$

Answer: $\{2\}$

b. $4(h - 2) = -8$

Answer: $\{0\}$

End of slide

Example 2

Solve $\dfrac{5(8+2)}{18-(5-3)^3} = k.$

$$\frac{5(8+2)}{18-(5-3)^3} = k$$ Original equation

$$\frac{5(10)}{18-(2)^3} = k$$ Add 8 and 2 in the numerator. Subtract 5 and 3 in the denominator.

$$\frac{5(10)}{18-8} = k$$ Evaluate the power in the denominator.

$$\frac{50}{10} = k$$ Simplify.

Answer: $5 = k$ Divide.

End of slide

Your Turn

Solve $\dfrac{3(6+4)}{21-(10-6)^2} = w.$

Answer: 6

End of slide

Example 3

Find the solution set for if the replacement set is $\{20, 21, 22, 23, 24\}$.

$z + 11 \geq 32$

Replace z in $z + 11 \geq 32$ with each value in the replacement set.

z	$z + 11 \geq 32$	True or False?
20	$20 + 11 \stackrel{?}{\geq} 32 \rightarrow 31 \geq 32$	false
21	$21 + 11 \stackrel{?}{\geq} 32 \rightarrow 32 \geq 32$	true ✓
22	$22 + 11 \stackrel{?}{\geq} 32 \rightarrow 33 \geq 32$	true ✓
23	$23 + 11 \stackrel{?}{\geq} 32 \rightarrow 34 \geq 32$	true ✓
24	$24 + 11 \stackrel{?}{\geq} 32 \rightarrow 35 \geq 32$	true ✓

Answer: The solution set for $z + 11 \geq 32$ is $\{21, 22, 23, 24\}$.

End of slide

Your Turn

Find the solution set for if the replacement set is $\{2, 3, 4, 5\}$.

$$2x - 3 \geq 6$$

Answer: $\{5\}$

Example 4

Outdoors **A four-wheel-drive tour of Canyon de Chelly National Monument in Arizona costs $45 for the first vehicle and $15 for each additional vehicle. How many vehicles can the Velo family take on the tour if they want to spend no more than $100?**

Explore The expression $45 + 15n$ can be used to represent the cost of $n + 1$ vehicles. The family wants to spend no more than $100. The situation can be represented by the inequality.

$$45 + 15n \leq 100$$

Plan Since no replacement set is given, estimate to find reasonable values for the replacement set.

End of slide—
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the next slide

Example 4

Solve Start by letting and then adjust values up or down as needed. $n = 6$

$$45 + 15n \leq 100$$ Original inequality

$$45 + 15(6) \leq 100$$ $n = 6$

$$45 + 90 \leq 100$$ Multiply 15 and 6.

$$135 \leq 100$$ Add 45 and 90.

The estimate is too high. Decrease the value of n.

End of slide—
continued on
the next slide

Example 4

n	$45+15n \le 100$	Reasonable?
5	$45+15(5) \stackrel{?}{\le} 100 \rightarrow 120 \not\le 100$	too high
2	$45+15(2) \stackrel{?}{\le} 100 \rightarrow 75 \le 100$	too low
3	$45+15(3) \stackrel{?}{\le} 100 \rightarrow 90 \le 100$	almost
4	$45+15(4) \stackrel{?}{\le} 100 \rightarrow 105 \not\le 100$	too high

Examine The solution set is $\{0, 1, 2, 3\}$. In addition to the first vehicle, the Velo family can take up to 3 additional vehicles and spend no more than $100.

Answer: They can take as many as $3+1$ or 4 vehicles and stay within their budget.

End of slide

Your Turn

Books A mail-order Book Club is having a sale on paperback books. You can purchase an unlimited number of books for $8.50 each. There is a $7.00 charge for shipping. How many books can you buy if you have $60 to spend?

Answer: 6

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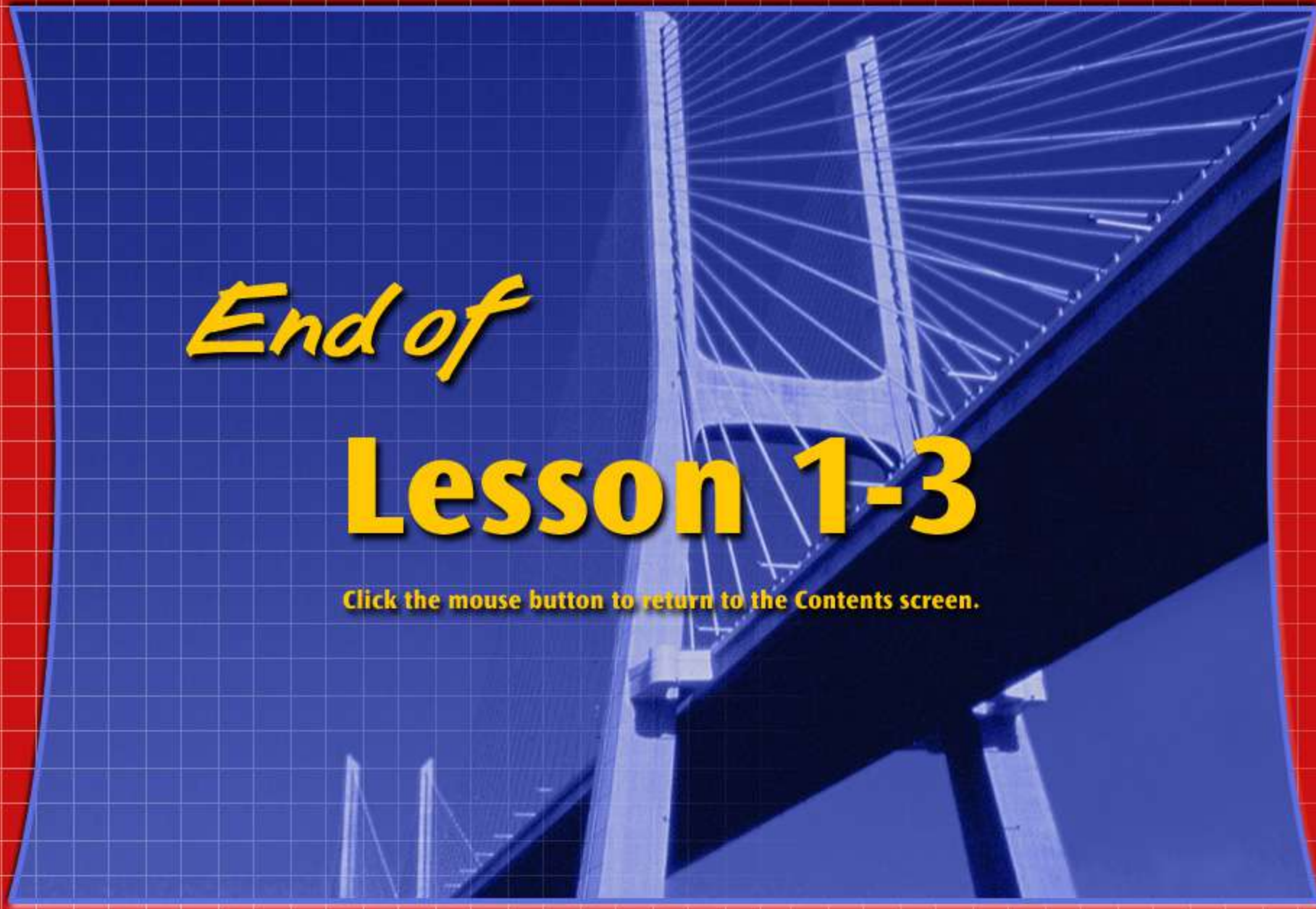
End of
Lesson 1-3
Click the mouse button to return to the Contents screen.

Lesson 1-4 Contents

Example 1a

Name the property used in $n \cdot 12 = 0$. Then find the value of n.

Answer: Multiplicative Property of Zero

$n = 0$, since $0 \cdot 12 = 0$.

End of slide

Example 1b

Name the property used in $n \cdot \frac{1}{5} = 1$. Then find the value of n.

Answer: Multiplicative Inverse Property

$n = 5$, since $5 \cdot \frac{1}{5} = 1$.

Example 1c

Name the property used in $0 + n = 8$. Then find the value of n.

Answer: Additive Identity Property

$n = 8$, since $0 + 8 = 8$.

Your Turn

Name the property used in each equation. Then find the value of n.

a. $n \cdot \frac{1}{3} = 1$

Answer: Multiplicative Inverse Property; $n = 3$

b. $n + 0 = 11$

Answer: Additive Identity Property; $n = 11$

c. $n \cdot 4 = 0$

Answer: Multiplicative Property of Zero; $n = 0$

End of slide

Example 2

Evaluate $\frac{1}{4}(12-8)+3(15\div 5-2)$.

Name the property used in each step.

$$\frac{1}{4}(12-8)+3(15\div 5-2)=\frac{1}{4}(4)+3(15\div 5-2)$$

Substitution; $12-8=4$

$$=\frac{1}{4}(4)+3(3-2)$$

Substitution; $15\div 5=3$

$$=\frac{1}{4}(4)+3(1)$$

Substitution; $3-2=1$

End of slide–
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the next slide

Example 2

$= 1 + 3(1)$

Multiplicative Inverse; $\frac{1}{4} \cdot 4 = 1$

$= 1 + 3$

Multiplicative Identity; $3 \cdot 1 = 3$

Answer: $= 4$

Substitution; $1 + 3 = 4$

End of slide

Your Turn

Evaluate $\frac{1}{3}(10-7)+4(18\div 9-1)$.

Name the property used in each step.

$$\frac{1}{3}(10-7)+4(18\div 9-1)=\frac{1}{3}(3)+4(18\div 9-1)$$

Substitution; $10-7=3$

$$=\frac{1}{3}(3)+4(2-1)$$

Substitution; $18\div 9=2$

$$=\frac{1}{3}(3)+4(1)$$

Substitution; $2-1=1$

End of slide–
continued on
the next slide

Your Turn

$= 1 + 4(1)$

Multiplicative Inverse; $\frac{1}{3} \cdot 3 = 1$

$= 1 + 4$

Multiplicative Identity; $4 \cdot 1 = 4$

Answer: $= 5$

Substitution; $1 + 4 = 5$

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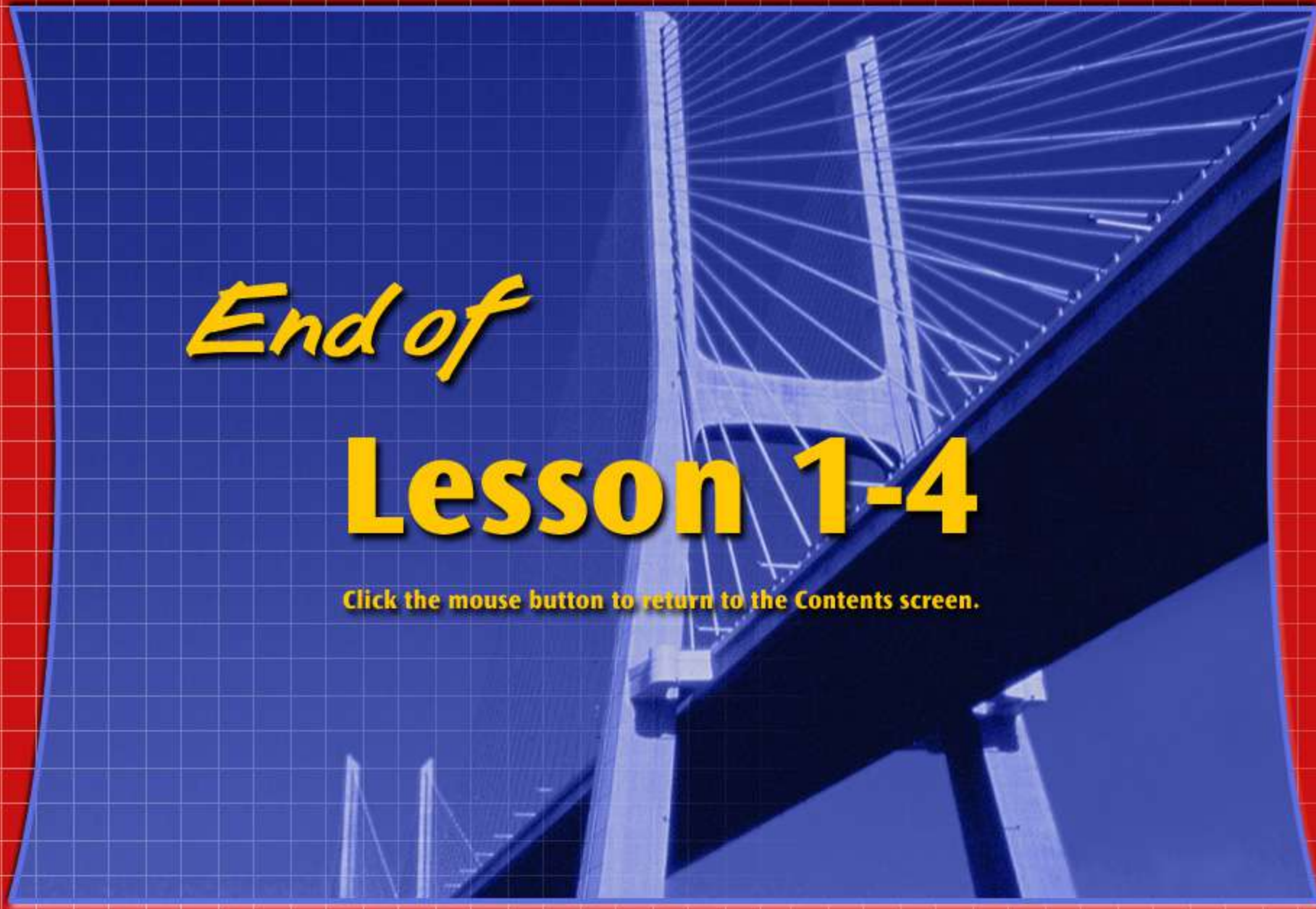
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Lesson 1-4
Click the mouse button to return to the Contents screen.

Lesson 1-5 Contents

Example 1

Rewrite $5(7+2)$ using the Distributive Property. Then evaluate.

$$5(7+2) = 5(7)+5(2)$$ Distributive Property.

$$= 35+10$$ Multiply.

Answer: $= 45$ Add.

End of slide

Your Turn

Rewrite $4(11 + 6)$ using the Distributive Property. Then evaluate.

Answer: $4(11) + 4(6);\ 68$

End of slide

Example 2

Rewrite $(16 - 7)3$ using the Distributive Property. Then evaluate.

$$(16 - 7)3 = 16 \cdot 3 - 7 \cdot 3$$ Distributive Property.

$$= 48 - 21$$ Multiply.

Answer: $= 27$ Subtract.

STOP! End of slide

Your Turn

Rewrite $(12 - 7)2$ using the Distributive Property. Then evaluate.

Answer: $12 \cdot 2 - 7 \cdot 2$; 10

End of slide

Example 3

Cars **Find what the total cost of the Morris family operating two cars would have been in 1985, if they drove the first car 18,000 miles and the second car 16,000 miles.**

Use the Distributive Property to write and evaluate an expression.

$$0.23(18{,}000 + 16{,}000)$$

Distributive Property

$$= 4140 + 3680$$

Multiply.

$$= 7820$$

Add.

Answer: It would have cost them $7820.

Your Turn

Cars Find what the total cost of the Morris family operating two cars would have been in 1995, if they drove the first car 18,000 miles and the second car 16,000 miles.

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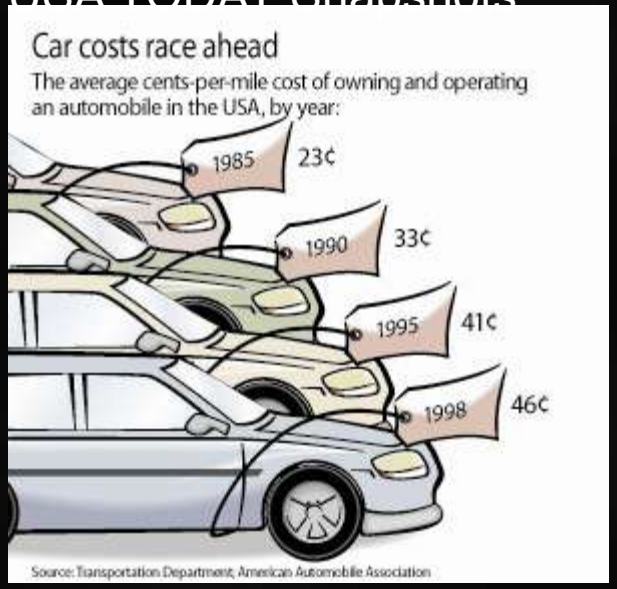

Answer: $13,940

STOP! End of slide

Example 4a

Use the Distributive Property to find. $12 \cdot 82$

$$12 \cdot 82 = 12(80 + 2)$$ Think: $82 = 80 + 2$

$$= 12(80) + 12(2)$$ Distributive Property

$$= 960 + 24$$ Multiply.

$$= 984$$ Add.

Answer:

End of slide

Example 4b

Use the Distributive Property to find. $27\left(3\frac{2}{3}\right)$

$$27\left(3\frac{2}{3}\right) = 27\left(3+\frac{2}{3}\right)$$ Think: $\left(3\frac{2}{3}\right) = 3+\frac{2}{3}$

$$= 27(3)+27\left(\frac{2}{3}\right)$$ Distributive Property

$$= 81+18$$ Multiply.

$$= 99$$ Add.

Answer:

End of slide

Your Turn

Use the Distributive Property to find each product.

a. $6 \cdot 54$

Answer: 324

b. $15\left(1\frac{2}{5}\right)$

Answer: 21

End of slide

Example 5a

Rewrite $12(y+3)$ using the Distributive Property. Then simplify.

$$12(y+3) = 12 \cdot y + 12 \cdot 3$$ Distributive Property

Answer: $= 12y + 36$ Multiply.

End of slide

Example 5b

Rewrite $4(y^2 + 8y + 2)$ using the Distributive Property. Then simplify.

$$4(y^2 + 8y + 2) = 4(y^2) + 4(8y) + 4(2)$$

Distributive Property

Answer: $= 4y^2 + 32y + 8$

Multiply.

End of slide

Your Turn

Rewrite each product using the Distributive Property. Then simplify.

a. $6(x-4)$

Answer: $6 \cdot x - 6 \cdot 4;\ 6x - 24$

b. $3(x^3 + 2x^2 - 5x + 7)$

Answer: $3(x^3) + 3(2x^2) - 3(5x) + 3(7);$
$3x^3 + 6x^2 - 15x + 21$

End of slide

Example 6a

Simplify . $17a + 21a$

$17a + 21a = (17 + 21)a$ Distributive Property

Answer: $= 38a$ Substitution

End of slide

Example 6b

Simplify. $12b^2 - 8b^2 + 6b$

$12b^2 - 8b^2 + 6b = (12 - 8)b^2 + 6b$ Distributive Property

Answer: $= 4b^2 + 6b$ Substitution

End of slide

Your Turn

Simplify each expression.

a. $14x - 9x$

Answer: $5x$

b. $6n^2 + 7n + 8n$

Answer: $6n^2 + 15n$

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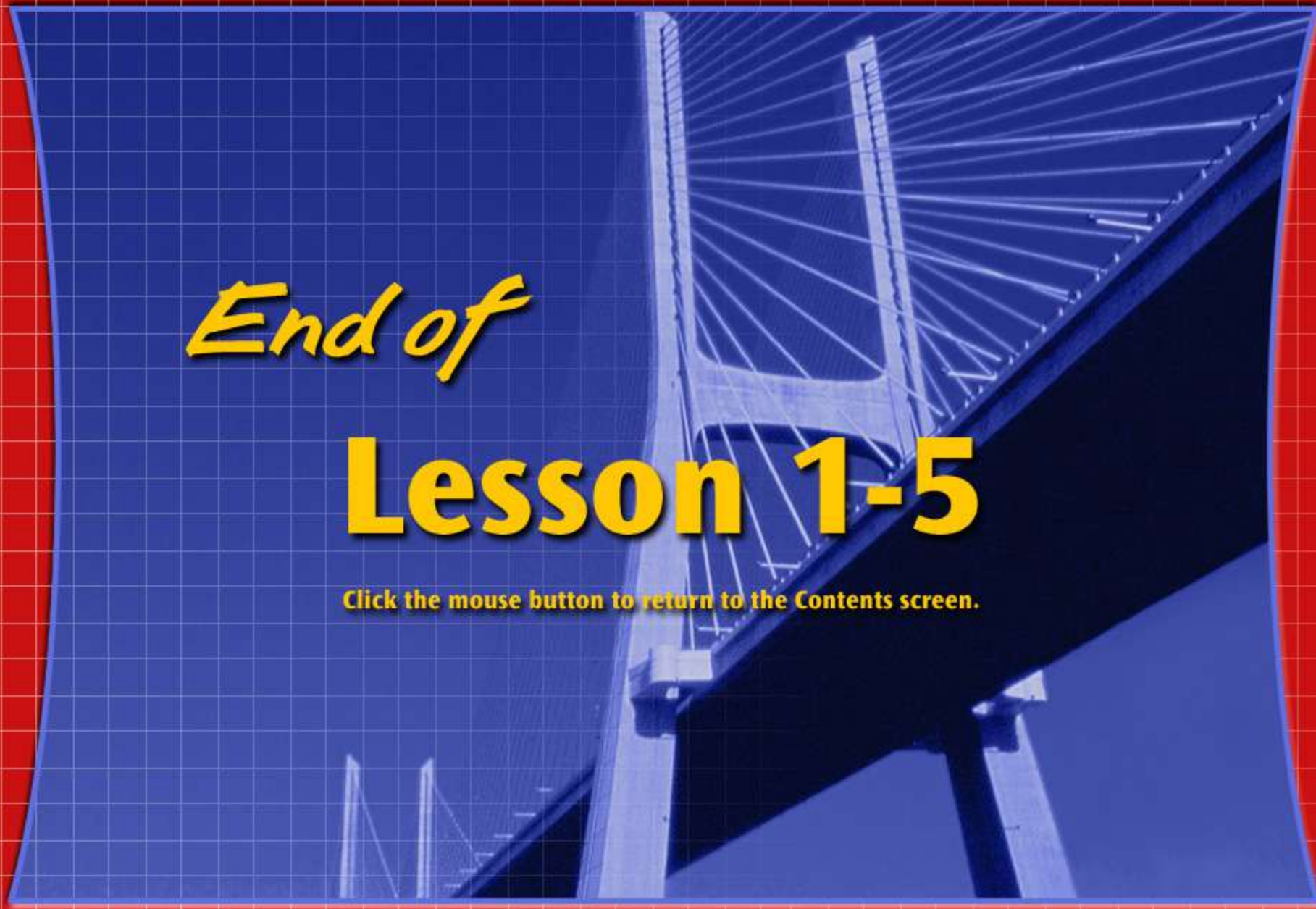
End of
Lesson 1-5
Click the mouse button to return to the Contents screen.

Lesson 1-6 Contents

Example 1

Evaluate $2 \cdot 8 \cdot 5 \cdot 7$.

You can rearrange and group the factors to make mental calculations easier.

$$2 \cdot 8 \cdot 5 \cdot 7 = 2 \cdot 5 \cdot 8 \cdot 7$$ Commutative ($\times$)

$$= (2 \cdot 5) \cdot (8 \cdot 7)$$ Associative ($\times$)

$$= 10 \cdot 56$$ Multiply.

Answer: $= 560$ Multiply.

End of slide

Your Turn

Evaluate $3 \cdot 5 \cdot 3 \cdot 4$.

Answer: 180

End of slide

Example 2

Transportation Refer to Example 2 in Lesson 1-6 of your book. Find the distance between Lakewood/Ft. McPherson and Five Points. Explain how the Commutative Property makes calculating the answer unnecessary.

Lakewood/ Ft. McPherson to Oakland City	Oakland City to West End	West End to Garnett	Garnett to Five Points

$$1.1+1.5+1.5+0.4$$

End of slide—
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the next slide

Example 2

$$1.1 + 1.5 + 1.5 + 0.4 = 1.1 + 0.4 + 1.5 + 1.5$$ Commutative (+)

$$= (1.1 + 0.4) + (1.5 + 1.5)$$ Associative (+)

$$= 1.5 + 3.0$$ Add.

$$= 4.5$$ Add.

Answer: The distance is 4.5 miles.

Calculating the answer is actually unnecessary because the route is the opposite of the one in Example 2. The Commutative Property states that the order in which numbers are added does not matter.

End of slide

Your Turn

The distance from Five Points to Garnett is 0.4 mile. From Garnett, West End is 1.5 miles. From West End, Oakland City is 1.5 miles. Write an expression to find the distance from Five Points to Oakland City, then write an expression to find the distance from Oakland City to Five Points.

Answer: Five Points to Oakland City: $0.4 + 1.5 + 1.5$
Oakland City to Five Points: $1.5 + 1.5 + 0.4$

End of slide

Example 3

Simplify $8(2b + 4) + 7b$.

$$8(2b + 4) + 7b = 8(2b) + 8(4) + 7b$$ Distributive Property

$$= 16b + 32 + 7b$$ Multiply.

$$= 16b + 7b + 32$$ Commutative (+)

$$= (16b + 7b) + 32$$ Associative (+)

$$= (16 + 7)b + 32$$ Distributive Property

Answer: $= 23b + 32$ Substitution

End of slide

Your Turn

Simplify $5(3c + 4) + 6c$.

Answer: $21c + 20$

Example 4a

Use the expression *three times the sum of* $3x$ *and* $2y$ *added to five times the sum of* x *and* $4y$.

Write an algebraic expression for the verbal expression.

three times the sum of $3x$ and $2y$	added to	five times the sum of x and $4y$
$3(3x+2y)$	$+$	$5(x+4y)$

Answer: $3(3x+2y)+5(x+4y)$

End of slide

Example 4b

Simplify the expression and indicate the properties used.

$$3(3x+2y)+5(x+4y)=3(3x)+3(2y)+5(x)+5(4y)$$

Distributive Property

$$=9x+6y+5x+20y$$

Multiply.

$$=9x+5x+6y+20y$$

Commutative $(+)$

$$=(9+5)x+(6+20)y$$

Distributive Property

$$=14x+26y$$

Substitution

Answer:

End of slide

Your Turn

Use the expression *five times the sum of* $2x$ *and* $3y$ *increased by* 2 *times the sum of* x *and* $6y$.

a. Write an algebraic expression for the verbal expression.

Answer: $5(2x+3y)+2(x+6y)$

b. Simplify the expression and indicate the properties used.

Answer:

$$5(2x+3y)+2(x+6y)=5(2x)+5(3y)+2(x)+2(6y)$$ Distributive Property

$$=10x+15y+2x+12y$$ Multiply.

$$=10x+2x+15y+12y$$ Commutative (+)

$$=(10+2)x+(15+12)y$$ Distributive Property

$$=12x+27y$$ Substitution

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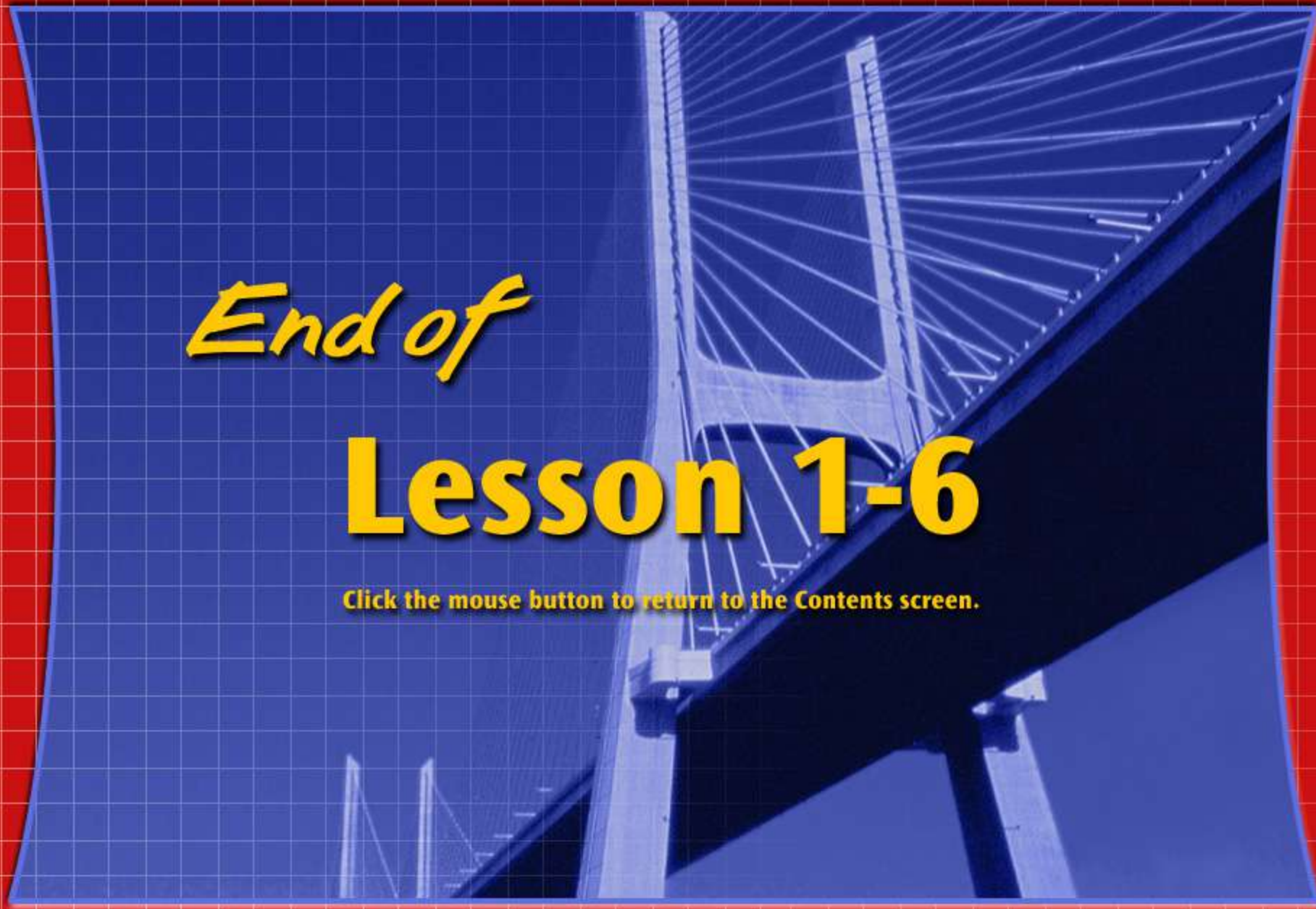

End of
Lesson 1-6
Click the mouse button to return to the Contents screen.

Lesson 1-7 Contents

Example 1a

Identify the hypothesis and conclusion of the statement.

If it is raining, then Beau and Chloe will not play softball.

Recall that the hypothesis is the part of the conditional following the word *if* and the conclusion is the part of the conditional following the word *then*.

Answer: Hypothesis: it is raining
Conclusion: Beau and Chloe will not play softball

End of slide

Example 1b

Identify the hypothesis and conclusion of the statement.

If $7y + 5 \leq 26$, **then** $y \leq 3$.

Answer: Hypothesis: $7y + 5 \leq 26$
Conclusion: $y \leq 3$

End of slide

Your Turn

Identify the hypothesis and conclusion of each statement.

a. If it is above 75°, then you can go swimming.

Answer: Hypothesis: it is above 75°
Conclusion: you can go swimming

b. If $2x + 3 = 5$, then $x = 1$.

Answer: Hypothesis: $2x + 3 = 5$
Conclusion: $x = 1$

Example 2a

Identify the hypothesis and conclusion of the statement. Then write the statement in if-then form.

I eat light meals.

Answer: Hypothesis: I eat a meal
Conclusion: it is light
If I eat a meal, then it is light.

Example 2b

Identify the hypothesis and conclusion of the statement. Then write the statement in if-then form.

For a number a such that $8 + 5a = 43$, $a = 7$.

Answer: Hypothesis: $8 + 5a = 43$
$a = 7$
Conclusion: If $8 + 5a = 43$, then $a = 7$.

End of slide

Your Turn

Identify the hypothesis and conclusion of each statement. Then write each statement in if-then form.

a. We go bowling on Fridays.

Answer: Hypothesis: it is Friday
Conclusion: we go bowling
If it is Friday, then we go bowling.

b. For a number x such that $11 + 5x < 21$, $x < 2$.

Answer: Hypothesis: $11 + 5x < 21$
$x < 2$
Conclusion: If $11 + 5x < 21$, then $x < 2$.

End of slide

Example 3a

Determine a valid conclusion that follows from the statement, "If one number is odd and another number is even, then their sum is odd" for the given conditions. If a valid conclusion does not follow, write *no valid conclusion* and explain why.

The two numbers are 5 and 12.

5 is odd and 12 is even, so the hypothesis is true.

Answer: Conclusion: The sum of 5 and 12 is odd.

End of slide

Example 3b

Determine a valid conclusion that follows from the statement, "If one number is odd and another number is even, then their sum is odd" for the given conditions. If a valid conclusion does not follow, write *no valid conclusion* and explain why.

The two numbers are 8 and 26.

Both numbers are even, so the hypothesis is false.

Answer: no valid conclusion

Your Turn

Determine a valid conclusion that follows from the statement "If the last digit in a number is 0, then the number is divisible by 10" for the given conditions. If a valid conclusion does not follow, write *no valid conclusion* and explain why.

a. The number is $16{,}580$.

Answer: The number is divisible by 10.

b. The number is 4005.

Answer: No valid conclusion; the last digit in 4005 is not 0.

End of slide

Example 4a

Find a counterexample for the conditional statement.

If Joe does not eat lunch, then he must not feel well.

Answer: Perhaps Joe was not hungry.

End of slide

Example 4b

Find a counterexample for the conditional statement.

If the traffic light is red, then the cars must be stopped.

Answer: A driver could run the red light.

End of slide

Your Turn

Find a counterexample for each conditional statement.

a. If you are 16, then you have a driver's license.

Answer: You could wait until you are 17 before getting a driver's license.

b. If the Commutative Property holds for addition, then it holds for subtraction.

Answer: $1 - 2 \stackrel{?}{=} 2 - 1$

$-1 \neq 1$

Example 5

Multiple-Choice Test Item **Which numbers are counterexamples for the statement below?**

$x - y \neq y - x$

A $x = 2, y = 3$

B $x = 4, y = 4$

C $x = 0, y = 1$

D $x = 7, y = -7$

Read the Test Item

Find the values of x and y that make the statement false.

Solve the Test Item

Replace x and y in the inequality $x - y \neq y - x$ with the given values.

A $x = 2, y = 3$

$2 - 3 \stackrel{?}{=} 3 - 2$

$-1 \neq 1$

The hypothesis is true because the expressions are not equal.

End of slide–
continued on
the next slide

Example 5

B $x = 4, y = 4$

$4 - 4 \stackrel{?}{=} 4 - 4$

$0 = 0$

The hypothesis is false because. $0 = 0$

C $x = 0, y = 1$

$0 - 1 \stackrel{?}{=} 1 - 0$

$-1 \neq 1$

The hypothesis is true because the expressions are not equal.

D $x = 7, y = -7$

$7 - (-7) \stackrel{?}{=} -7 - 7$

$14 \neq -14$

The hypothesis is true because the expressions are not equal.

The only values that prove the statement false are $x = 4$ and $y = 4$. So these numbers are counterexamples.

Answer: B

End of slide

Your Turn

Which numbers are counterexamples for the statement below?

If $x \leq 1$, then $x \cdot y \leq 1$.

A $x = 1, y = 1$

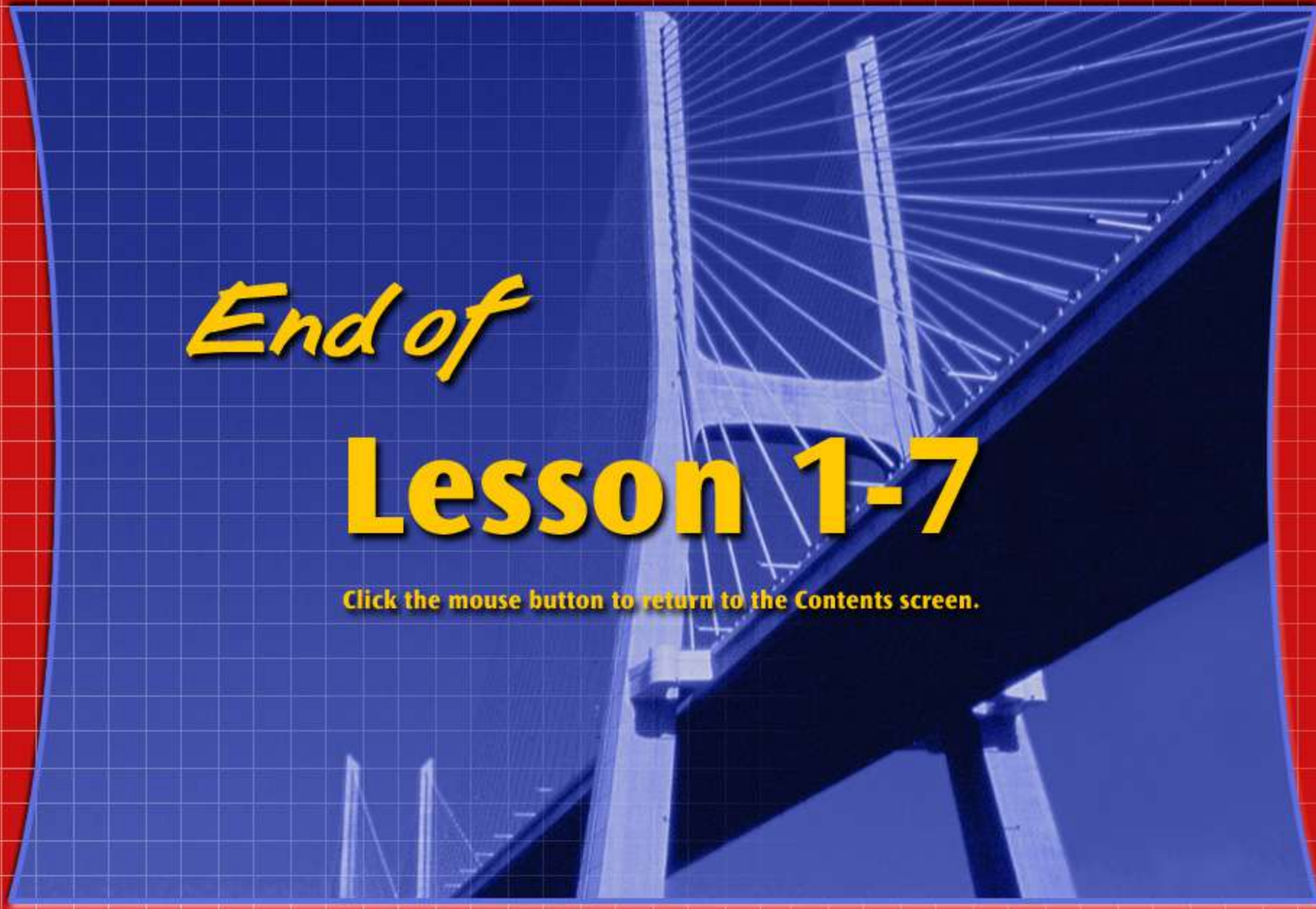
B $x = \frac{1}{4}, y = 2$

C $x = \frac{1}{3}, y = 9$

D $x = 0, y = -2$

Answer: C

End of slide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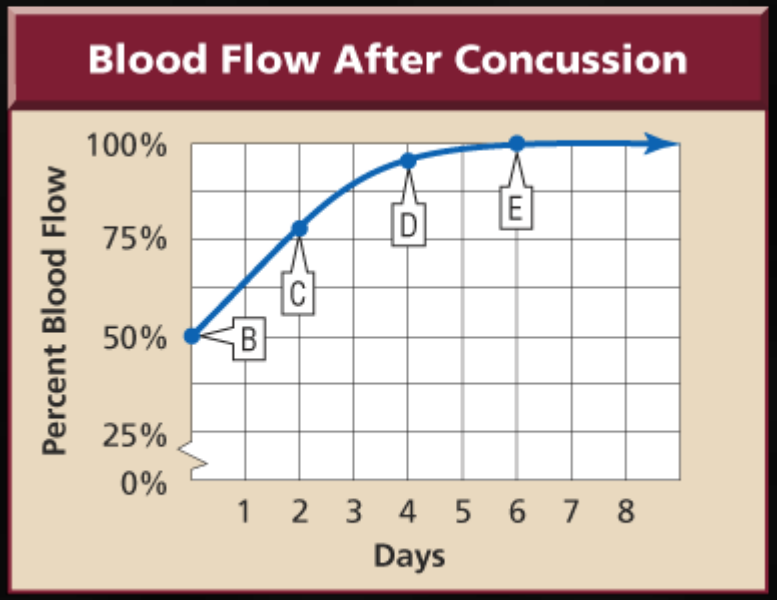
Lesson 1-7
Click the mouse button to return to the Contents screen.

Lesson 1-8 Contents

Example 1

Sports Medicine **Name the ordered pair at point E and explain what it represents.**

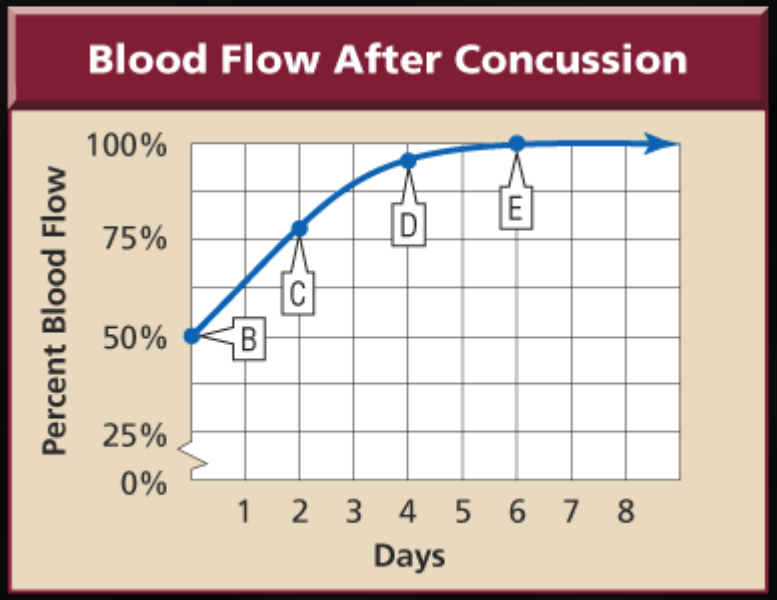


Source: *Scientific American*

Answer: Point E is at 6 along the x-axis and 100 along the y-axis. So, its ordered pair is $(6, 100)$. This represents 100% normal blood flow 6 days after the injury.

Your Turn

Name the ordered pair at point D and explain what it represents.



Source: *Scientific American*

Answer: $(4, 97)$
This represents 97% normal blood flow 4 days after the injury.

End of slide

Example 2

Energy **In warm climates, the average amount of electricity used in homes each month rises as the daily average temperature increases, and falls as the daily average temperature decreases. Identify the independent and the dependent variables for this function.**

Answer: Temperature is the independent variable as it is unaffected by the amount of electricity used. Electricity usage is the dependent variable as it is affected by the temperature.

End of slide

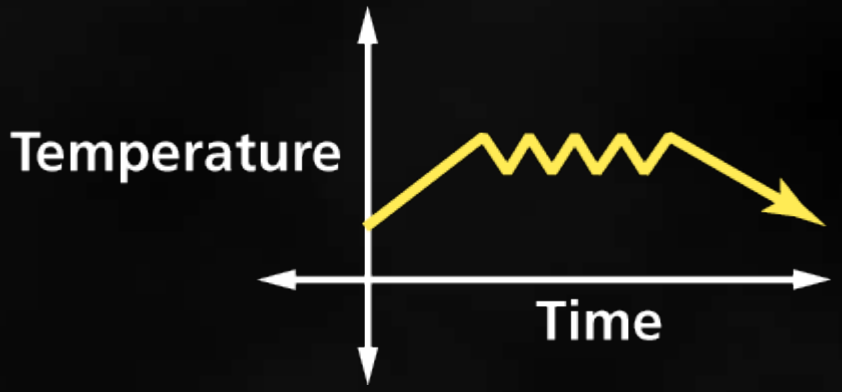
Your Turn

In a particular club, as membership dues increase, the number of new members decreases. Identify the independent and dependent variable in this function.

Answer: Membership dues is the independent variable. Number of new members is the dependent variable.

Example 3

The graph represents the temperature in Ms. Ling's classroom on a winter school day. Describe what is happening in the graph.

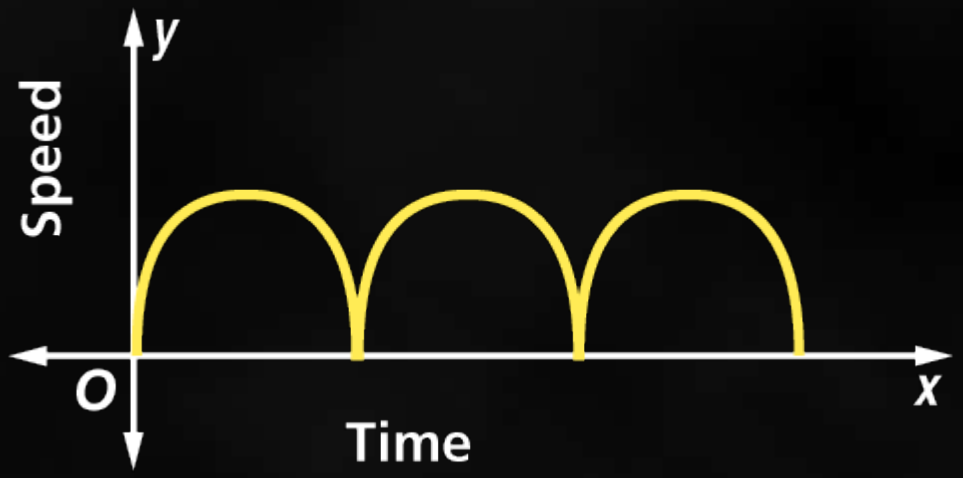


Sample answer: The temperature is low until the heat is turned on. Then the temperature fluctuates up and down because of the thermostat. Finally the temperature drops when the heat is turned off.

End of slide

Your Turn

The graph below represents Macy's speed as she swims laps in a pool. Describe what is happening in the graph.



Sample answer: Macy's speed increases as she crosses the length of the pool, but then stops when she turns around at the end of each lap.

End of slide

Example 4a

There are three lunch periods at a school cafeteria. During the first period, 352 students eat lunch. During the second period, 304 students eat lunch. During the third period, 391 students eat lunch.

Make a table showing the number of students for each of the three lunch periods.

Answer:

Period	1	2	3
Number of Students	352	304	391

End of slide

Example 4b

Write the data as a set of ordered pairs.

Period	1	2	3
Number of Students	352	304	391

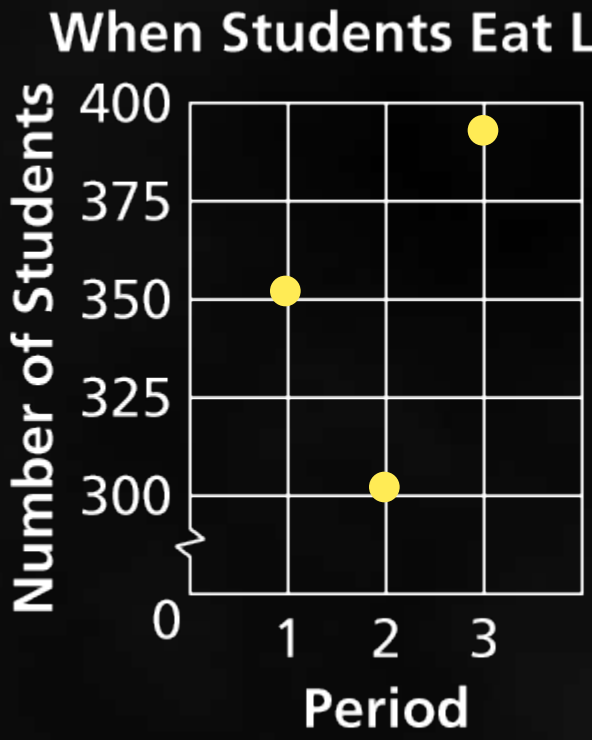
The ordered pairs can be determined from the table. The period is the independent variable and the number of students is the dependent variable.

Answer: The ordered pairs are $(1, 352)$, $(2, 304)$, and $(3, 391)$.

Example 4c

Draw a graph that shows the relationship between the lunch period and the number of students.

Answer:



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Your Turn

At a car dealership, a salesman worked for three days. On the first day he sold 5 cars. On the second day he sold 3 cars. On the third he sold 8 cars.

a. Make a table showing the number of cars sold for each day.

Answer:

Day	1	2	3
Number of Cars Sold	5	3	8

b. Write the data as a set of ordered pairs.

Answer: $(1, 5), (2, 3), (3, 8)$

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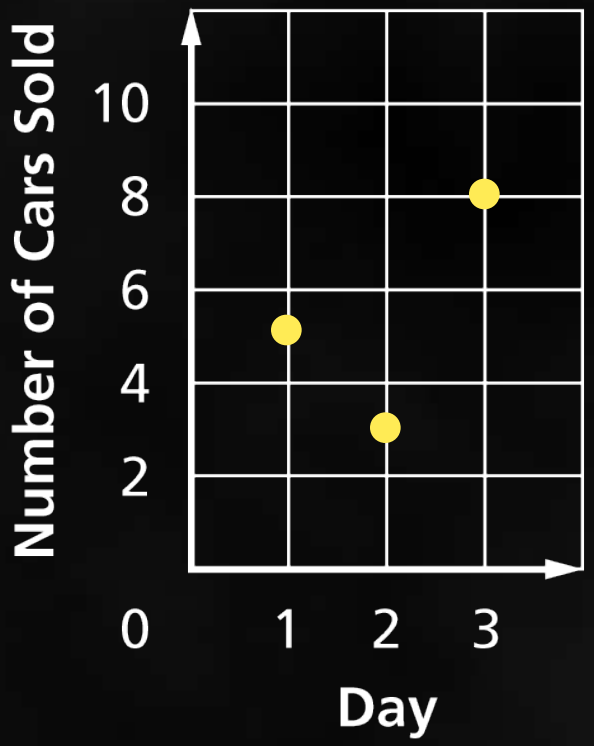
Your Turn

Draw a graph that shows the relationship between the day and the number of cars sold.

Answer:



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Example 5a

Mr. Mar is taking his biology classes to the zoo. The zoo admission price is $4 per student, and at most, 120 students will go.

Identify a reasonable domain and range for this situation.

The domain contains the number of students going on the field trip. Up to 120 students are going on the field trip. Therefore, a reasonable domain would be values from 0 to 120 students. The range contains the total admission price from $0 to $120 \times \$4$ or $480. Thus, a reasonable range is $0 to $480.

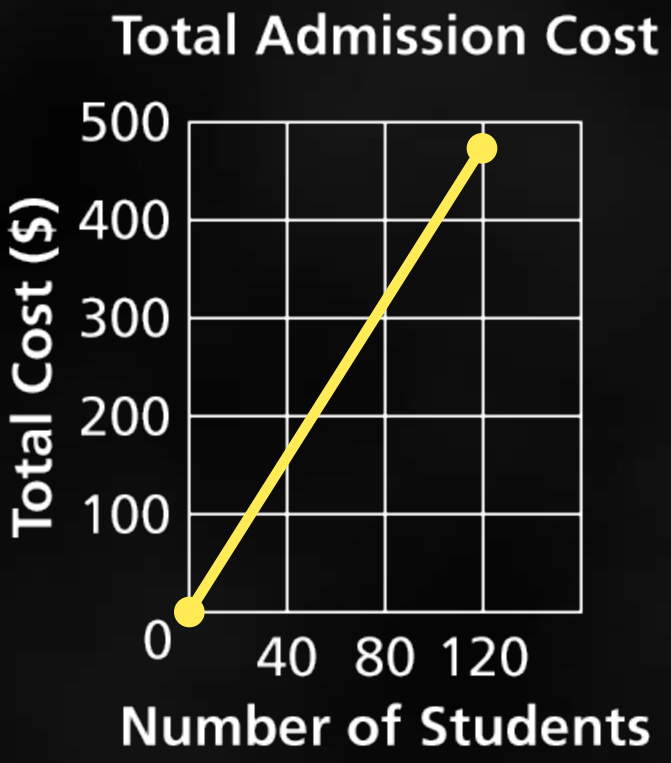
Answer: Domain: 0-120; Range: $0 to $480

End of slide

Example 5b

Draw a graph that shows the relationship between the number of students who go to the zoo and the total admission price.

Graph the ordered pairs $(0, 0)$ and $(120, 480)$. Since any number of students up to 120 students will go to the zoo, connect the two points with a line to include those points.



Answer:

End of slide

Your Turn

Prom tickets are on sale at a high school for $25 per person. The banquet room where the prom is being held can hold up to 250 people.

a. Identify a reasonable domain and range for this situation.

Answer: Domain: 0-250; Range: $0 to $6250

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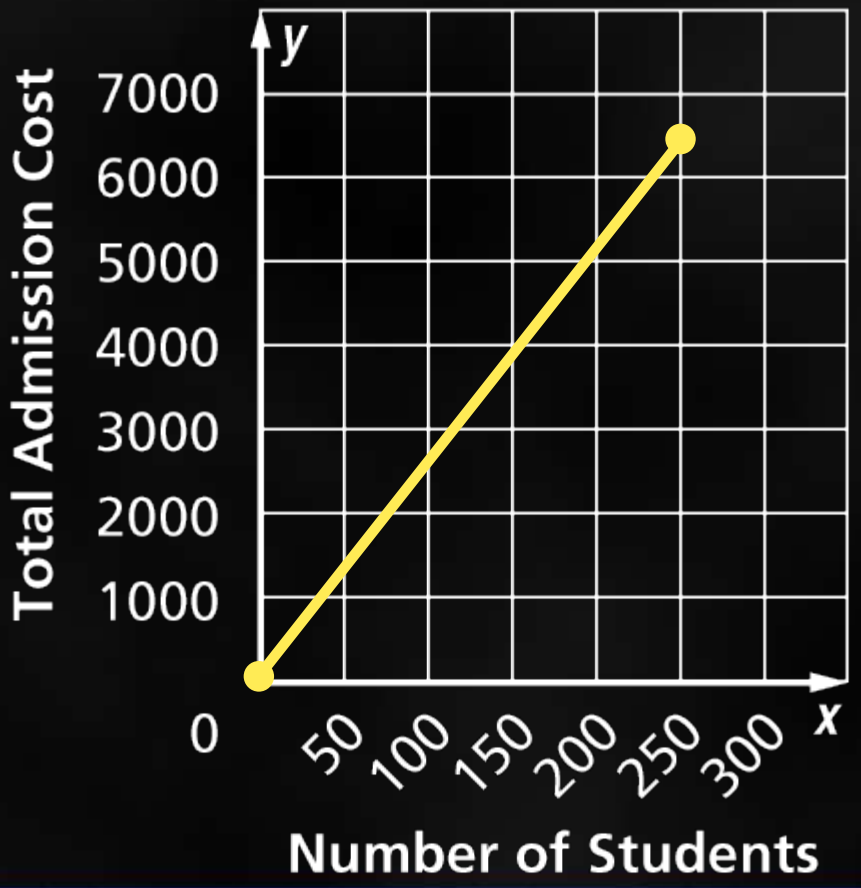
the next slide

Your Turn

b. Draw a graph that shows the relationship between the number of persons attending the prom and total admission price.

Answer:



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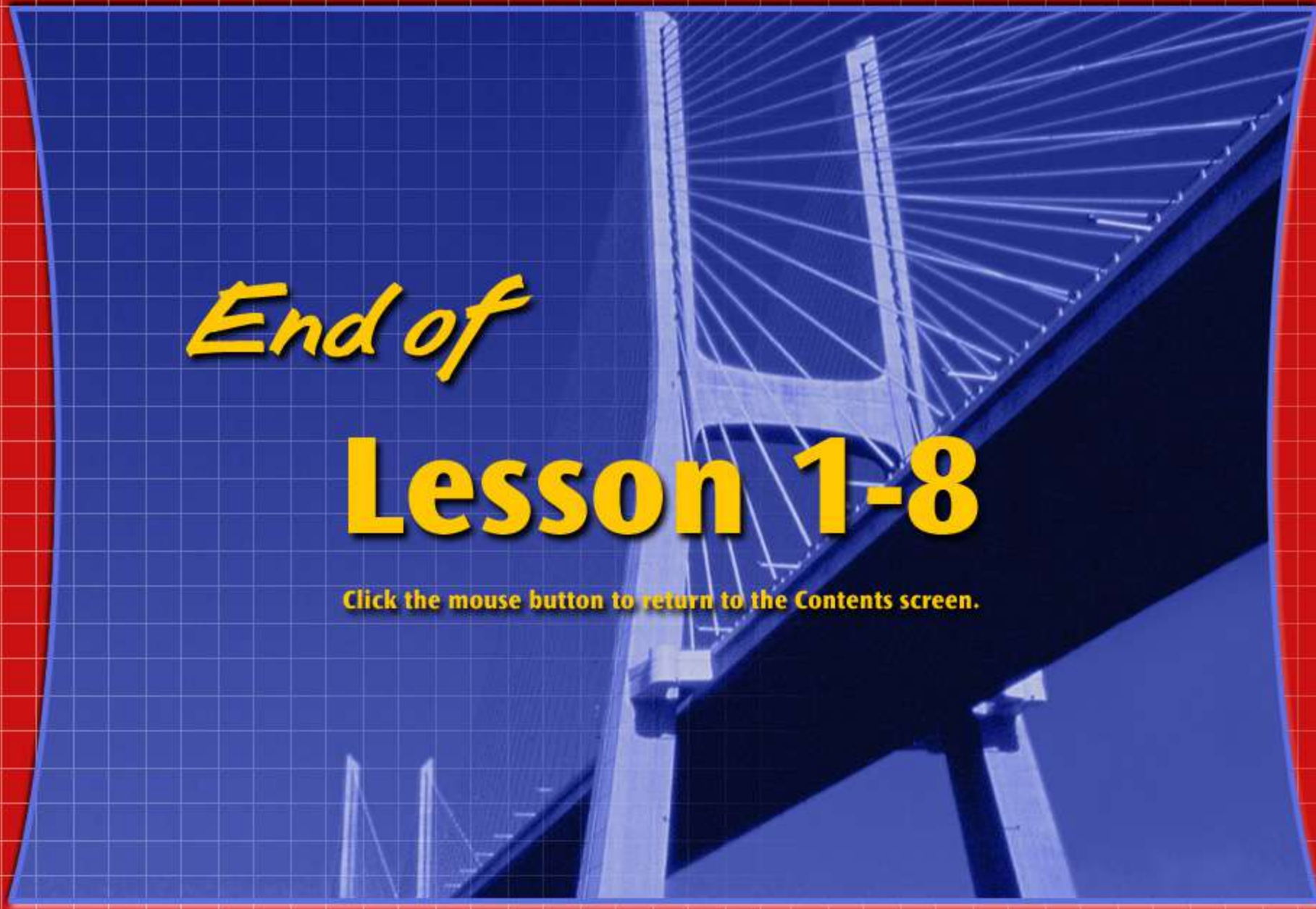
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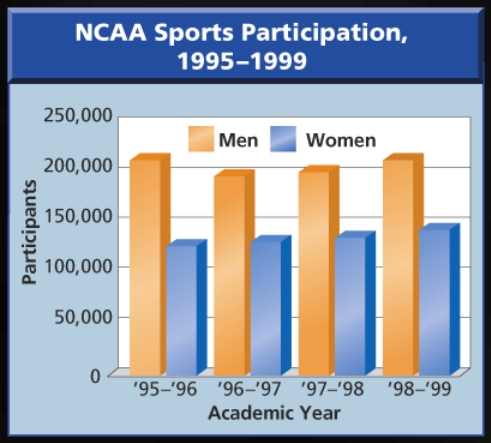
Lesson 1-8
Click the mouse button to return to the Contents screen.

Lesson 1-9 Contents

Example 1a

The table shows the number of men and women participating in the NCAA championship sports programs from 1995 to 1999. These same data are displayed in a bar graph.

NCAA Championship Sports Participation 1995-1999				
Year	'95- '96	'96- '97	'97- '98	'98- '99
Men	206,366	199,375	200,031	207,592
Women	125,268	129,295	133,376	145,832



Describe how you can tell from the graph that the number of men in NCAA sports remained about the same, while the number of women increased.

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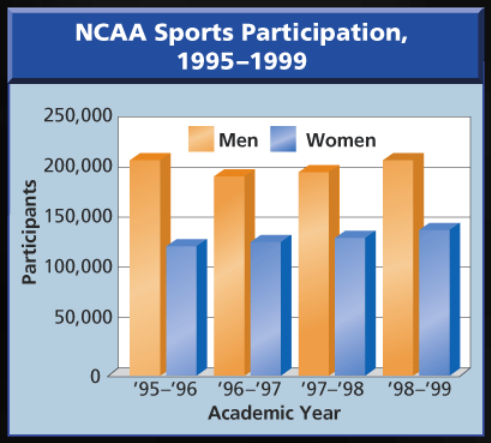
Example 1a

Answer: Each bar for men is either just above or just below 200,000. The bars for the women increase each year from about 125,000 to 150,000.

Example 1b

The table shows the number of men and women participating in the NCAA championship sports programs from 1995 to 1999. These same data are displayed in a bar graph.

NCAA Championship Sports Participation 1995-1999				
Year	'95- '96	'96- '97	'97- '98	'98- '99
Men	206,366	199,375	200,031	207,592
Women	125,268	129,295	133,376	145,832



To determine approximately how many more men than women participated in sports during the 1997-1998 school year, is it better to use the table or the bar graph?

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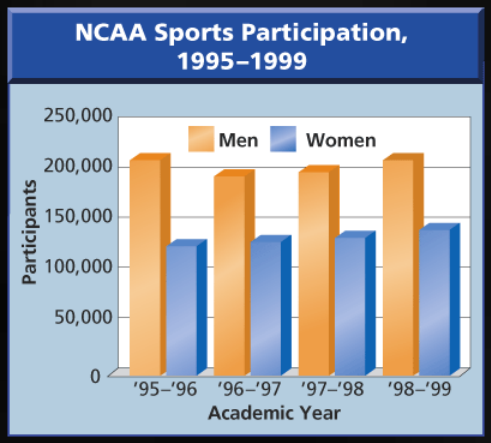
Example 1b

Answer: Table; it is easier to see the numbers to round and subtract.

Example 1c

The table shows the number of men and women participating in the NCAA championship sports programs from 1995 to 1999. These same data are displayed in a bar graph.

NCAA Championship Sports Participation 1995-1999				
Year	'95- '96	'96- '97	'97- '98	'98- '99
Men	206,366	199,375	200,031	207,592
Women	125,268	129,295	133,376	145,832



To determine the total participation among men and women in the 1998-1999 academic year, why should you use the table?

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the next slide

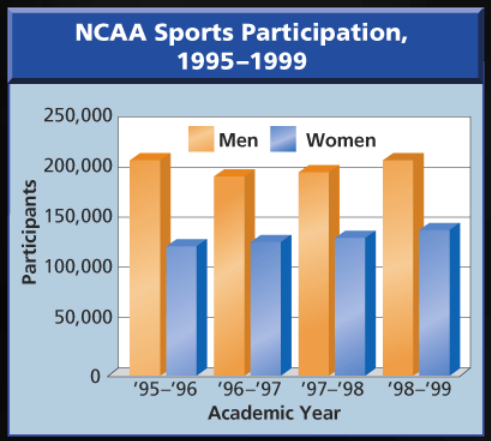
Example 1c

Answer: The question asks for an exact answer, not an approximate number.

Your Turn

The table shows the number of men and women participating in the NCAA championship sports programs from 1995 to 1999. These same data are displayed in a bar graph.

NCAA Championship Sports Participation 1995-1999				
Year	'95- '96	'96- '97	'97- '98	'98- '99
Men	206,366	199,375	200,031	207,592
Women	125,268	129,295	133,376	145,832



a. Has the general trend of the difference between the number of men and the number of women participating in NCAA sports increased, decreased, or remained fairly constant from 1995 to 1999?

Answer: decreased

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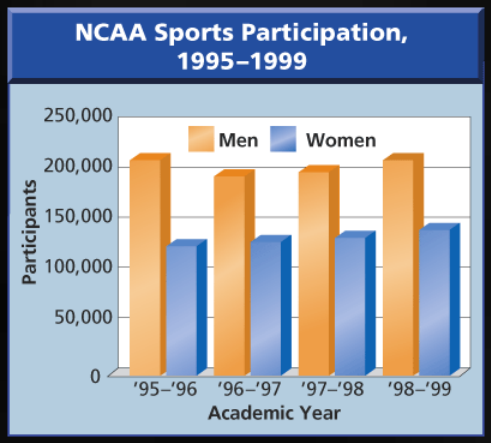
Your Turn

The table shows the number of men and women participating in the NCAA championship sports programs from 1995 to 1999. These same data are displayed in a bar graph.

NCAA Championship Sports Participation 1995-1999				
Year	'95- '96	'96- '97	'97- '98	'98- '99
Men	206,366	199,375	200,031	207,592
Women	125,268	129,295	133,376	145,832



b. Approximately how many more men than women participated in sports during the 1996-1997 school year?

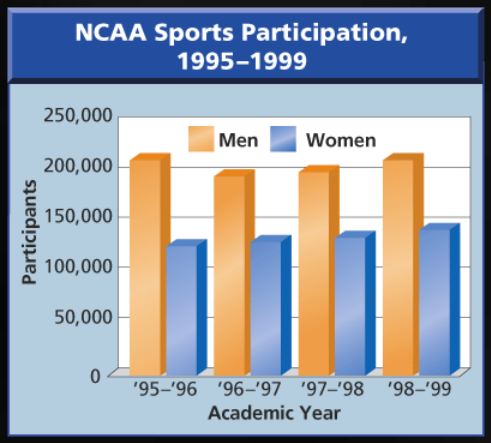
Answer: about 70,000

End of slide—continued on the next slide

Your Turn

The table shows the number of men and women participating in the NCAA championship sports programs from 1995 to 1999. These same data are displayed in a bar graph.

NCAA Championship Sports Participation 1995-1999				
Year	'95- '96	'96- '97	'97- '98	'98- '99
Men	206,366	199,375	200,031	207,592
Women	125,268	129,295	133,376	145,832



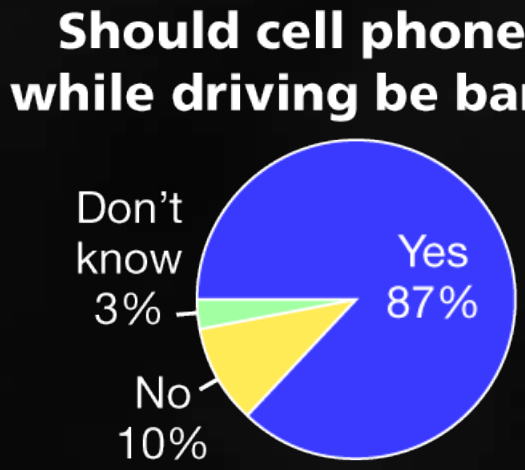
c. What was the total participation among men and women in the 1995-1996 academic year?

Answer: 331,634

End of slide

Example 2a

A recent poll in New York asked residents whether cell phone use while driving should be banned. The results are shown in the circle graph.



If 250 people in New York were surveyed, about how many thought that cell phone use while driving should be banned?

The section of the graph representing people who said cell phone use should be banned while driving is 87% of the circle, so find 87% of 250.

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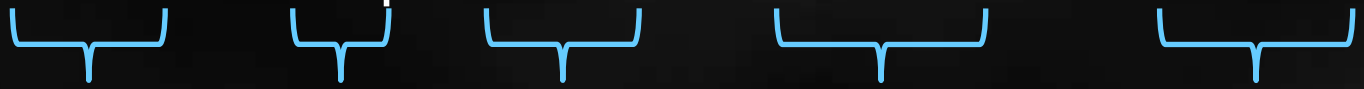
Example 2a

87% of 250 equals 217.5.



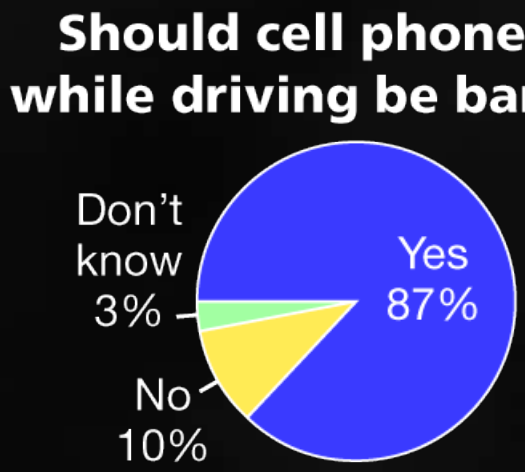
$0.87 \cdot 250 = 217.5$

Answer: About 218 people said cell phone use while driving should be banned.

End of slide

Example 2b

A recent poll in New York asked residents whether cell phone use while driving should be banned. The results are shown in the circle graph.



If a city of 516,000 is representative of those surveyed, how many people could be expected not to know whether cell phone use while driving should be banned?

3% of those surveyed said they didn't know if cell phone use while driving should be banned, so find 3% of 516,000.

$$0.03 \times 516,000 = 15,480$$

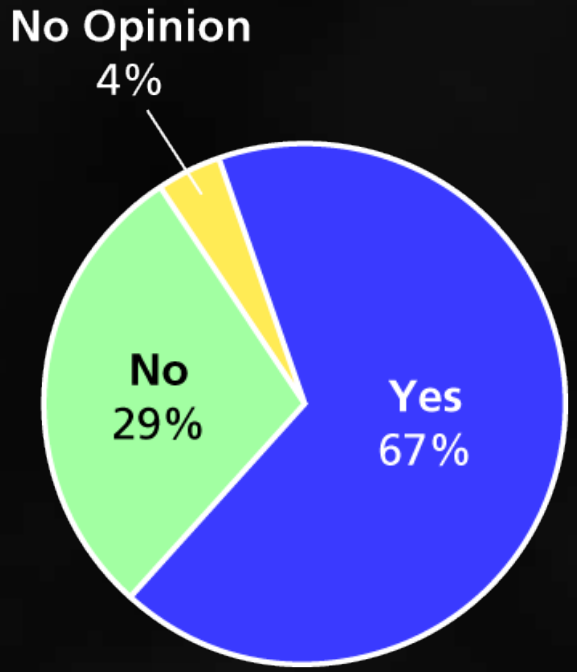
End of slide– continued on the next slide

Example 2b

Answer: 15,480 people don't know if cell phone use while driving should be banned.

Your Turn

A recent survey asked high school students if they thought their courses were challenging. The results are shown in the circle graph.



a. If 500 students were surveyed, how many felt that their courses were challenging?

Answer: 335

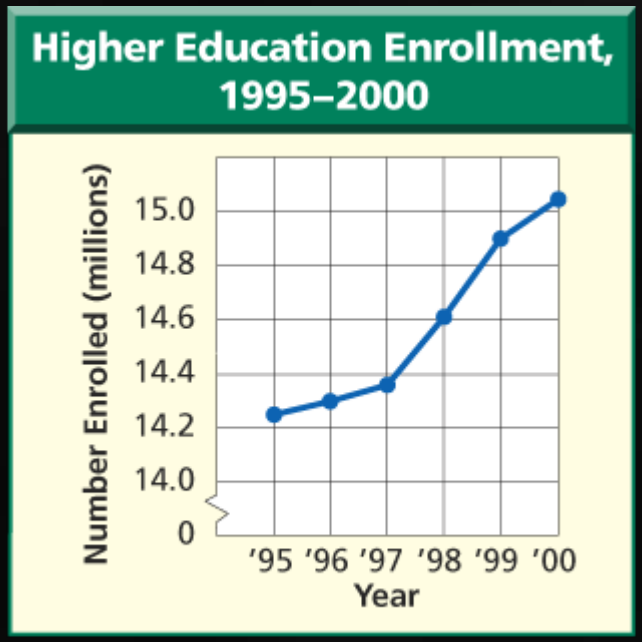
b. If a school of 2350 is representative of those surveyed, how many had no opinion about whether their courses were challenging?

Answer: 94

End of slide

Example 3a

Refer to the line graph below.



Source: U.S. National Center for Educational Statistics

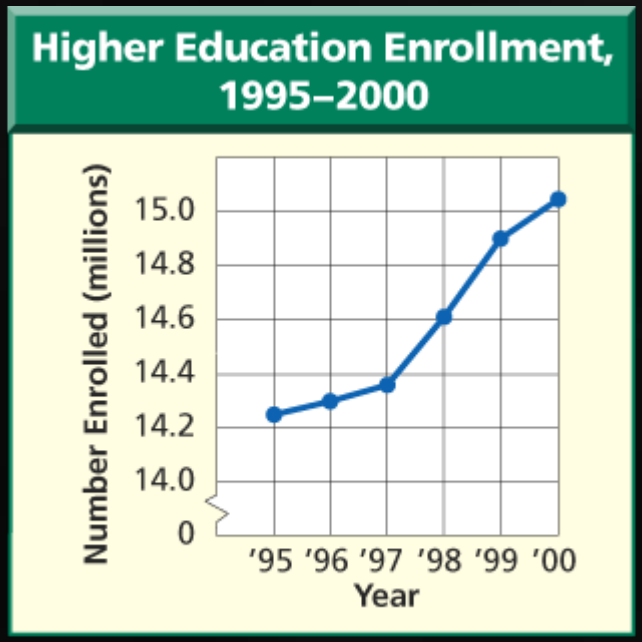
How would the change in enrollment between 1997 and 1999 compare to the change in enrollment between 1995 and 1999?

Answer: The change in enrollment between 1997 and 1999 was about five times the change in enrollment between 1995 and 1997.

End of slide

Example 3b

Refer to the line graph below.



Source: U.S. National Center for Educational Statistics

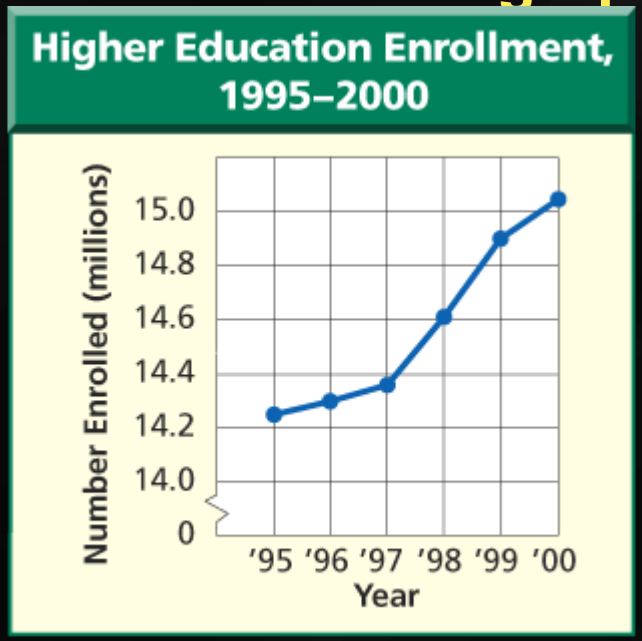
Why couldn't you simply extend the line on the graph beyond 2000 to predict the number of students enrolled in 2005?

Answer: The rate of change varies from year to year, so, extending the line at the same slope might not provide an accurate estimate.

End of slide

Your Turn

Refer to the line graph below.



Source: U.S. National Center for Educational Statistics

a. Estimate the change in enrollment between 1996 and 1998.

Answer: 0.3 million

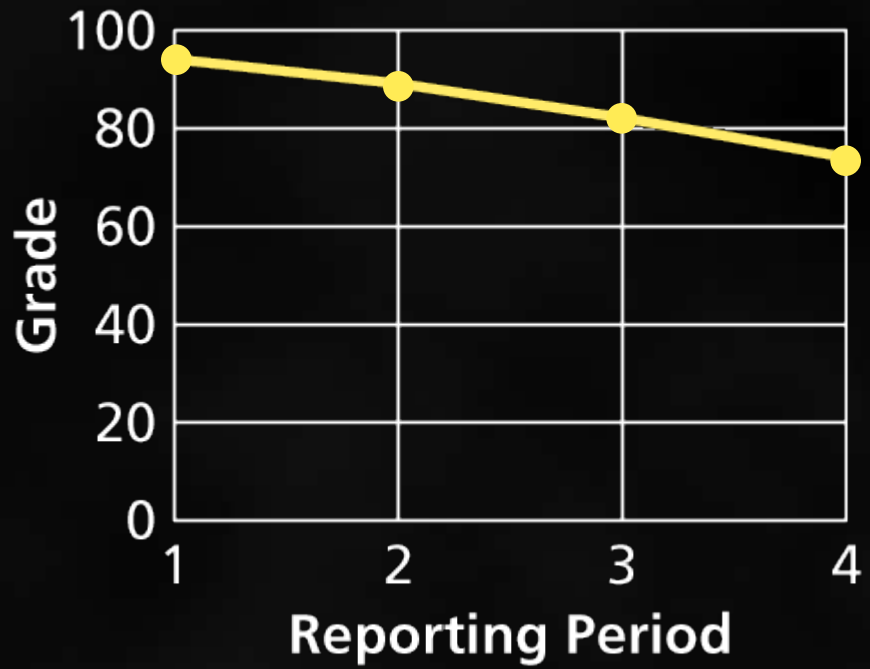
b. If the rate of growth between 1999 and 2000 continues, predict the number of people who will be enrolled in higher education in the year 2003.

Sample answer: about 15.4 million

End of slide

Example 4

Joel used the graph below to show his Algebra grade for the first four reporting periods of the year. Does the graph misrepresent the data? Explain.

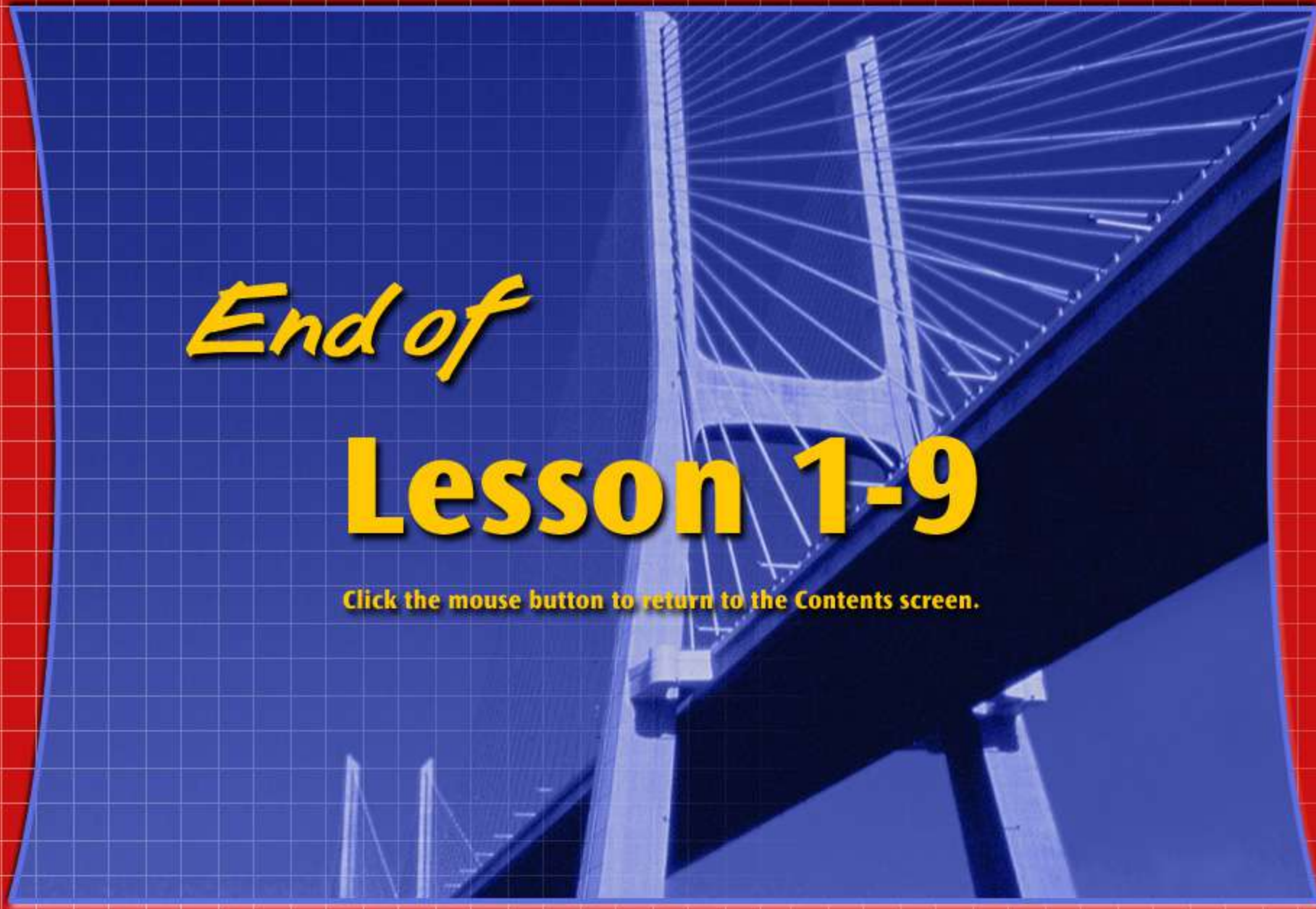


Answer: Yes, the scale on the x-axis is too large and minimizes the amount that Joel's grade dropped.

Your Turn

Explain how you could draw a graph that better represents this data.

Answer: The intervals on the horizontal axis should be the same size as the intervals on the vertical axis. You could also include a break on the vertical axis, start the intervals at 50 and increase the intervals by 10 to represent the drop in Joel's grade more clearly.


End of
Lesson 1-9
Click the mouse button to return to the Contents screen.

Extra Examples

Explore online information about the information introduced in this chapter.

Click on the **Connect** button to launch your browser and go to the *Algebra 1* Web site. At this site, you will find extra examples for each lesson in the Student Edition of your textbook. When you finish exploring, exit the browser program to return to this presentation. If you experience difficulty connecting to the Web site, manually launch your Web browser and go to **www.algebra1.com/extra_examples**.

Find each sum.

1. $2.19 + 18.35$

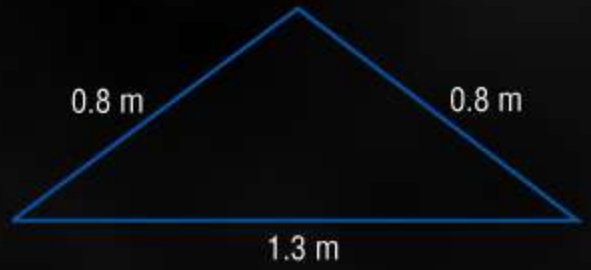
2. $3\frac{2}{9} + 4\frac{2}{3}$

Find each product or quotient.

3. $84 \div 6$

4. $1\frac{5}{6} \cdot \frac{3}{22}$

5. Find the perimeter of the figure.



6. **Standardized Test Practice** There are 5280 feet in 1 mile. One way to find the number of feet in $\frac{3}{8}$ mile is to multiply 5280 by which of these numbers?

A 0.375

B 0.38

C 3.75

D 3.8

5-Minute Check

Find each sum.

1. $2.19 + 18.35$ 20.54

2. $3\frac{2}{9} + 4\frac{2}{3}$ $7\frac{8}{9}$

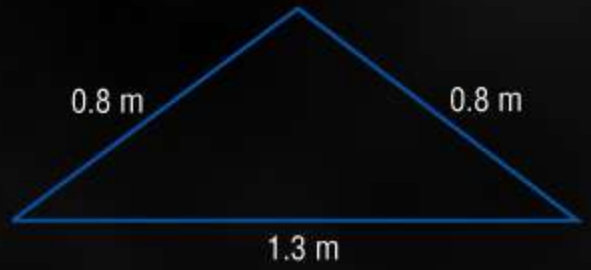
Find each product or quotient.

3. $84 \div 6$ 14

4. $1\frac{5}{6} \cdot \frac{3}{22}$ $\frac{1}{4}$

5. Find the perimeter of the figure.

2.9 m



6. **Standardized Test Practice** There are 5280 feet in 1 mile. One way to find the number of feet in $\frac{3}{8}$ mile is to multiply 5280 by which of these numbers?

A 0.375 B 0.38

C 3.75 D 3.8

Write an algebraic expression for each verbal expression.

1. the difference of 12 and n
2. four times the square of n
3. Evaluate 7^3.
4. Write a verbal expression for $2c^2 + d$.
5. Mechanical pencils sell for \$0.79 each, and pens sell for \$0.89 each. Write an expression for the cost of m pencils and p pens.
6. **Standardized Test Practice** What is *8 less than three times n*?

A $n + (3 \times 8)$

B $8 - 3n$

C $3n - 8$

D $n - (3 \times 8)$

Write an algebraic expression for each verbal expression.

1. the difference of 12 and n $12 - n$
2. four times the square of n $4n^2$
3. Evaluate 7^3. 343
4. Write a verbal expression for $2c^2 + d$.
   two times the square of a number c plus a number d
5. Mechanical pencils sell for \$0.79 each, and pens sell for \$0.89 each. Write an expression for the cost of m pencils and p pens. $0.79m + 0.89p$
6. **Standardized Test Practice** What is *8 less than three times n*?

   A $n + (3 \times 8)$
   B $8 - 3n$
   C $3n - 8$
   D $n - (3 \times 8)$

Evaluate each expression.

1. $20 - 6 \cdot 3$

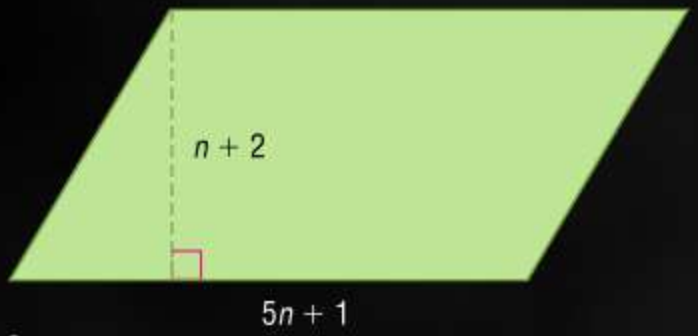
2. $2(15 + 3) - 11 \cdot 2$

Evaluate each expression if $a = 4$, $b = 5$, and $c = 10$.

3. $\dfrac{ac^2 - 8b}{ab}$

4. $b^3 + ac - b$

5. Find the area of the parallelogram when $n = 3$ units.



6. **Standardized Test Practice** Following the order of operations, what is the first calculation performed to simplify $4[7 + 2(40 \div 8)^3]$?

A 2×40

B 4×7

C $7 + 2$

D $40 \div 8$

Evaluate each expression.

1. $20 - 6 \cdot 3$ 2

2. $2(15 + 3) - 11 \cdot 2$ 14

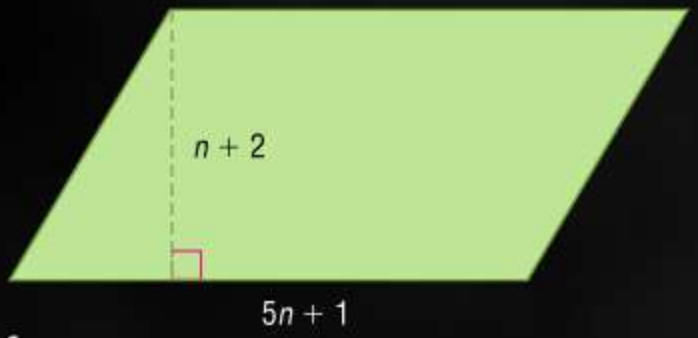
Evaluate each expression if $a = 4$, $b = 5$, and $c = 10$.

3. $\frac{ac^2 - 8b}{ab}$ 18

4. $b^3 + ac - b$ 160

5. Find the area of the parallelogram when $n = 3$ units.

80 units^2



6. **Standardized Test Practice** Following the order of operations, what is the first calculation performed to simplify $4[7 + 2(40 \div 8)^3]$?

A 2×40

B 4×7

C $7 + 2$

D $40 \div 8$

Find the solution of each equation using the given replacement set.

1. $5b - 11 = 34$; {7, 9, 13, 16, 22}

2. $a + \frac{4}{5} = \frac{19}{15}; \left\{\frac{2}{15}, \frac{7}{15}, \frac{15}{15}, \frac{31}{15}\right\}$

3. Find the solution set of $\frac{b}{4} \leq 9$ using the replacement set {16, 26, 36, 46}.

4. Write an inequality to show the cost of purchasing 2 azalea bushes a and 3 boxwood bushes b while keeping the cost under $40.00.

Prices for Bushes		
Bush	Small	Large
Azalea	$4.50	$8.50
Boxwood	$6.00	$10.00

5. **Standardized Test Practice** What is the value of y in $y = [7(4 + 5) + 1] \div (6^2 - 20)$?

A 8 B 14

C 4 D 16

Find the solution of each equation using the given replacement set.

1. $5b - 11 = 34$; {7, 9, 13, 16, 22} 9

2. $a + \frac{4}{5} = \frac{19}{15}$; $\left\{\frac{2}{15}, \frac{7}{15}, \frac{15}{15}, \frac{31}{15}\right\}$ $\frac{7}{15}$

3. Find the solution set of $\frac{b}{4} \leq 9$ using the replacement set {16, 26, 36, 46}. {16, 26, 36}

4. Write an inequality to show the cost of purchasing 2 azalea bushes a and 3 boxwood bushes b while keeping the cost under $40.00.

Prices for Bushes		
Bush	Small	Large
Azalea	$4.50	$8.50
Boxwood	$6.00	$10.00

$2a + 3b < 40$

5. **Standardized Test Practice** What is the value of y in $y = [7(4 + 5) + 1] \div (6^2 - 20)$?

A 8 B 14

C 4 D 16

Name the property used in each equation. Then find the value of *n*.

1. $8 \cdot n = 0$

2. $7 + (11 - 5) = n + 6$

3. Evaluate $4 \cdot \frac{1}{4} + (4^2 - 16)$. Name the property used in each step.

4. **Standardized Test Practice** Assume that ♦ is an operation and the following is true for all real numbers *a*: $a \diamond b = b \diamond a = a$. Which is the correct name for the element *b* under operation ♦?

   A reciprocal
   B identity
   C inverse
   D substitute

Name the property used in each equation. Then find the value of *n*.

1. $8 \cdot n = 0$
   Multiplicative Property of Zero; 0

2. $7 + (11 - 5) = n + 6$
   Substitution; 7

3. Evaluate $4 \cdot \frac{1}{4} + (4^2 - 16)$. Name the property used in each step. Sample answer:

$4 \cdot \frac{1}{4} + (4^2 - 16) = 4 \cdot \frac{1}{4} + (16 - 16)$ Substitution; $4^2 = 16$

$= 4 \cdot \frac{1}{4} + 0$ Substitution; $16 - 16 = 0$

$= 1 + 0$ Multiplicative Inverse Property; $4 \cdot \frac{1}{4} = 1$

$= 1$ Additive Identity; $1 + 0 = 1$

4. **Standardized Test Practice** Assume that ♦ is an operation and the following is true for all real numbers *a*: a ♦ $b = b$ ♦ $a = a$. Which is the correct name for the element *b* under operation ♦?

A reciprocal
B identity
C inverse
D substitute

Rewrite each expression using the Distributive Property. Then simplify.

1. $11(10 - 8)$

2. $6(4x + 5)$

Simplify each expression. If not possible, write *simplified*.

3. $(2d + 7)9$

4. $8n + 9 + 3n$

5. A theater has 176 seats and standing room for another 20 people. Write an expression to determine the number of people who attended 3 performances if all of the spaces were sold for each performance.

6. **Standardized Test Practice** If $a = 3$, which of the following statements is *not* true?

   A $5(6 + a) = 45$

   B $6(5 + a) = 5(6 + a)$

   C $5(6 + a) = (a + 6)5$

   D $5(6 + a) = 5a + 30$

5-Minute Check (over Lesson 1-5)

Transparency 1-6

Rewrite each expression using the Distributive Property. Then simplify.

1. $11(10 - 8)$ 22

2. $6(4x + 5)$ $24x + 30$

Simplify each expression. If not possible, write *simplified*.

3. $(2d + 7)9$ $18d + 63$

4. $8n + 9 + 3n$ $11n + 9$

5. A theater has 176 seats and standing room for another 20 people. Write an expression to determine the number of people who attended 3 performances if all of the spaces were sold for each performance.
$3(176 + 20)$

6. **Standardized Test Practice** If $a = 3$, which of the following statements is *not* true?

   A $5(6 + a) = 45$

   B $6(5 + a) = 5(6 + a)$

   C $5(6 + a) = (a + 6)5$

   D $5(6 + a) = 5a + 30$

Evaluate each expression.

1. $4 \cdot 1.5 \cdot 1.25$
2. $4\frac{3}{8} + 10 + 1\frac{5}{8}$

Simplify each expression.

3. $3c^2 + 8d + c^2$
4. $9(2y + 5) + 3y$

5. Write an algebraic expression for the verbal expression. Then simplify *three times the difference of w and z increased by 2 times z.*

6. **Standardized Test Practice**

Which is an expression for the total area of the figure shown?

A $2x^2$

B $2x^2 + x$

C $x^2 + 2x$

D $3x^2$

Evaluate each expression.

1. $4 \cdot 1.5 \cdot 1.25$ 7.5
2. $4\frac{3}{8} + 10 + 1\frac{5}{8}$ 16

Simplify each expression.

3. $3c^2 + 8d + c^2$ $4c^2 + 8d$
4. $9(2y + 5) + 3y$ $21y + 45$

5. Write an algebraic expression for the verbal expression. Then simplify *three times the difference of w and z increased by 2 times z.*
   $3(w - z) + 2z$; $3w - z$

6. **Standardized Test Practice**
   Which is an expression for the total area of the figure shown?

A $2x^2$
B $2x^2 + x$
C $x^2 + 2x$
D $3x^2$

Identify the hypothesis and conclusion of each statement.

1. If the flowers are blooming, then you may cut them.

2. If $n < 8$, then $3n - 1 < 23$.

Identify the hypothesis and conclusion of each statement. Write the statement in if-then form.

3. Complementary angles have a sum of 90°.

4. When $x = -2$, $x^2 + x + 7 = 9$.

5. **Standardized Test Practice** Which number is a counter example for $x \leq x^3$?

A -5 B 0

C 2 D -1

Click the mouse button or press the Space Bar to display the answers.

Identify the hypothesis and conclusion of each statement.

1. If the flowers are blooming, then you may cut them.
   H: the flowers are blooming, C: you may cut them

2. If $n < 8$, then $3n - 1 < 23$.
   H: $n < 8$, C: $3n - 1 < 23$

Identify the hypothesis and conclusion of each statement. Write the statement in if-then form.

3. Complementary angles have a sum of 90°.
   H: the angles are complementary, C: their sum is 90°;
   If angles are complementary, then their sum is 90°.

4. When $x = -2$, $x^2 + x + 7 = 9$.
   H: $x = -2$, C: $x^2 + x + 7 = 9$;
   If $x = -2$, then $x^2 + x + 7 = 9$.

5. **Standardized Test Practice** Which number is a counterexample for $x \leq x^3$?

   A -5 B 0

   C 2 D -1

5-Minute Check (over Lesson 1-8)

Transparency 1-9

Lea recorded the temperature of the taffy she was making while it was cooking. Use the table for Questions 1 and 2.

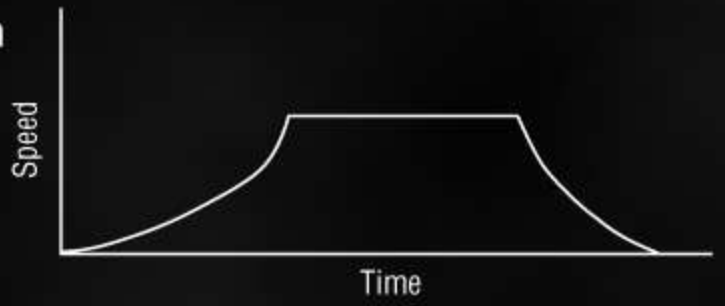
Temperature of Taffy					
Minutes	1	3	5	7	9
Temperature (°F)	100	115	145	195	255

1. Identify the independent and dependent variables.

2. Taffy must reach a temperature between 250°F and 265°F. Write the ordered pair that indicates when Lea's mixture reached this stage.

3. **Standardized Test Practice**

If the graph indicates the speed of a car on a test track, what does the horizontal portion of the graph indicate?



Click the mouse button or press the Space Bar to display the answers.

5-Minute Check (over Lesson 1-8)

Transparency 1-9

Lea recorded the temperature of the taffy she was making while it was cooking. Use the table for Questions 1 and 2.

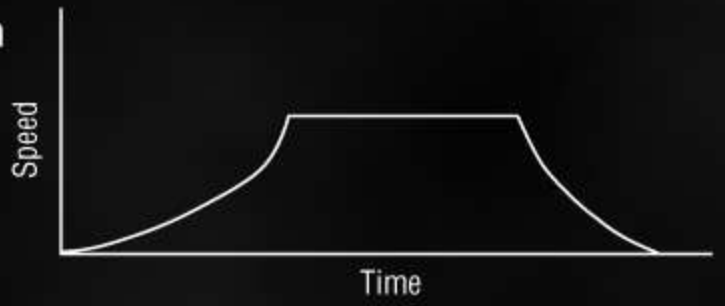
Temperature of Taffy					
Minutes	1	3	5	7	9
Temperature (°F)	100	115	145	195	255

1. Identify the independent and dependent variables.
   The independent variable is minutes, and the dependent variable is temperature.

2. Taffy must reach a temperature between 250°F and 265°F. Write the ordered pair that indicates when Lea's mixture reached this stage.
   (9, 255)

3. **Standardized Test Practice**
   If the graph indicates the speed of a car on a test track, what does the horizontal portion of the graph indicate?

   Sample answer:
   The car is moving at a constant speed.



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Click the **Main Menu** button to return to the presentation main menu.

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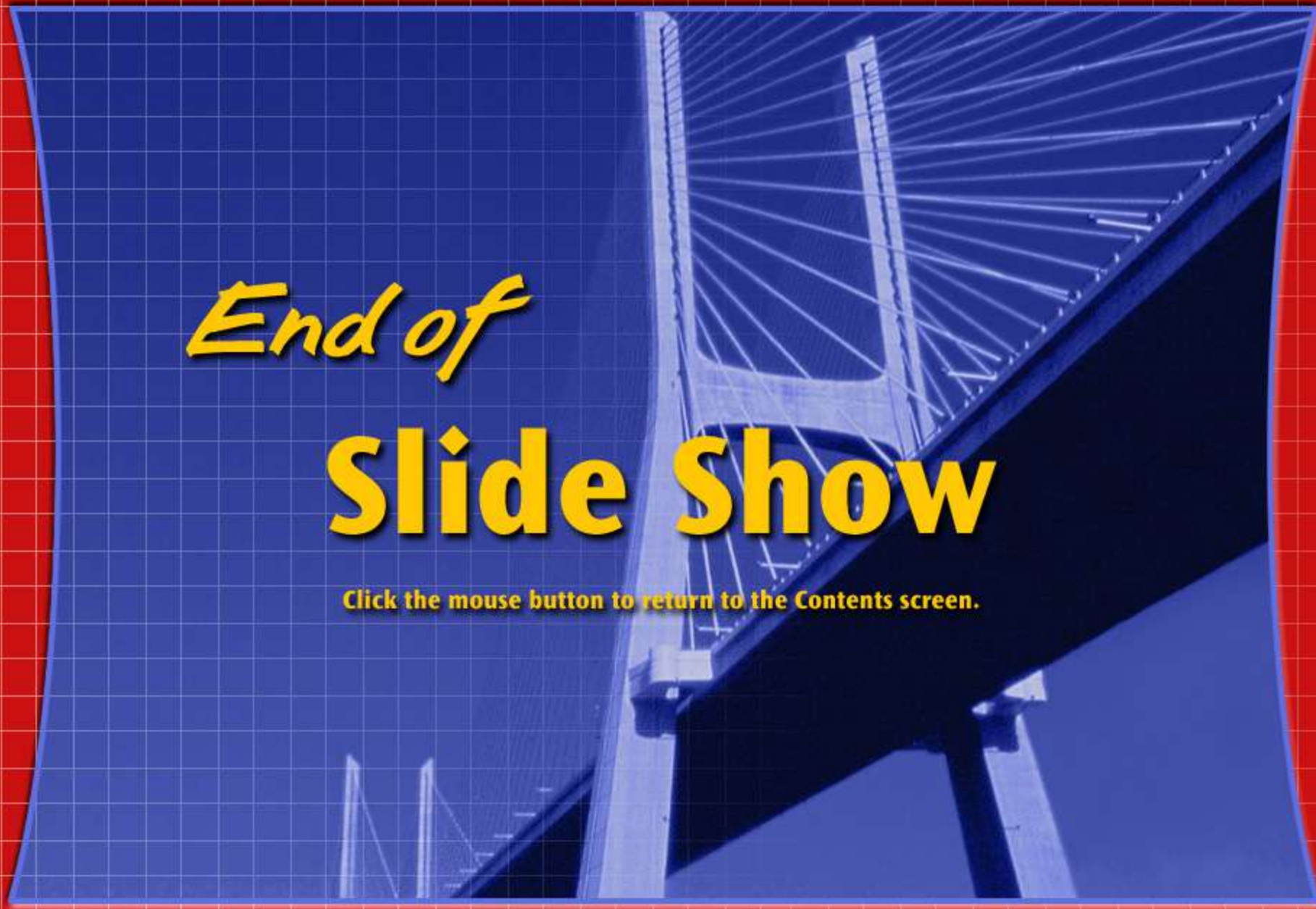
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