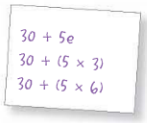
3 Develop the Concept

Problem Solving

Exercise	Content
21	Algebraic Expressions (30 + 5*e*)
22	Multiplication and Addition [30 + (5 × 3); 30 + (5 × 6)]
23	Algebraic Expressions (20 + 2*s*)
24	Multiplication and Addition [20 + (2 × 12); 20 + (2 × 19); 20 + (2 × 32)]
25	Algebraic Expressions (425*t*)
26	Multiplication (425 × 5)
27	Multiplication (425 × 3)
28	Algebraic Expressions (200 + 395*t*)
29	Algebraic Expressions (50*h* + 30)
30	Multiplication (8 × 500)
31	Algebraic Expressions (12*d* − 2)

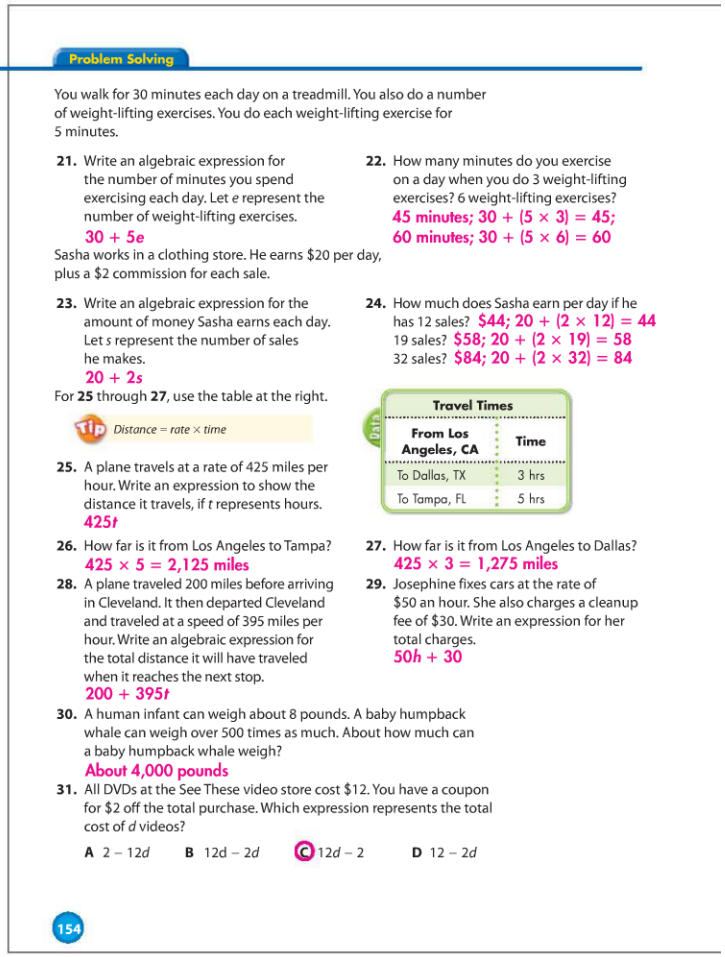
Students use underlying processes and mathematical tools for Exercises 21–31. Remind students to check for reasonableness when solving each problem.

Exercise 22
Problem-Solving Skills: Evaluating Expressions Lead students through the problem-solving steps they need to follow in order to answer Exercise 22. *What does the variable in Exercise 22 represent?* [How many different weight-lifting exercises you do] *How do you write the part of the expression that includes the variable?* [5 times the number of exercises, or 5*e*] *What operation do you do first in your expression?* [Multiplication] *What operation do you do second in your expression?* [Addition]



Exercise 29
Language of Math: Identify Relationships
Remind students that in many math situations, the word "also" can mean the same thing as "plus." *In Exercise 29, the word "also" is a signal that you should use one of the mathematical operations. What operation does the word "also" signal that you should use?* [Addition] *What are you adding to the rest of the bill?* [$30 cleanup fee]

Exercise 31
Test-Taking Tip: Gather Information from the Text
Remind students to look for important words. *The words "off the total purchase" tell you that subtraction is involved.*



Problem Solving

You walk for 30 minutes each day on a treadmill. You also do a number of weight-lifting exercises. You do each weight-lifting exercise for 5 minutes.

21. Write an algebraic expression for the number of minutes you spend exercising each day. Let *e* represent the number of weight-lifting exercises.
30 + 5*e*

22. How many minutes do you exercise on a day when you do 3 weight-lifting exercises? 6 weight-lifting exercises?
45 minutes; 30 + (5 × 3) = 45;
60 minutes; 30 + (5 × 6) = 60

Sasha works in a clothing store. He earns $20 per day, plus a $2 commission for each sale.

23. Write an algebraic expression for the amount of money Sasha earns each day. Let *s* represent the number of sales he makes.
20 + 2*s*

24. How much does Sasha earn per day if he has 12 sales? $44; 20 + (2 × 12) = 44
19 sales? $58; 20 + (2 × 19) = 58
32 sales? $84; 20 + (2 × 32) = 84

For **25** through **27**, use the table at the right.

Tip *Distance = rate × time*

Data

Travel Times

From Los Angeles, CA	Time
To Dallas, TX	3 hrs
To Tampa, FL	5 hrs

25. A plane travels at a rate of 425 miles per hour. Write an expression to show the distance it travels, if *t* represents hours.
425*t*

26. How far is it from Los Angeles to Tampa?
425 × 5 = 2,125 miles

27. How far is it from Los Angeles to Dallas?
425 × 3 = 1,275 miles

28. A plane traveled 200 miles before arriving in Cleveland. It then departed Cleveland and traveled at a speed of 395 miles per hour. Write an algebraic expression for the total distance it will have traveled when it reaches the next stop.
200 + 395*t*

29. Josephine fixes cars at the rate of $50 an hour. She also charges a cleanup fee of $30. Write an expression for her total charges.
50*h* + 30

30. A human infant can weigh about 8 pounds. A baby humpback whale can weigh over 500 times as much. About how much can a baby humpback whale weigh?
About 4,000 pounds

31. All DVDs at the See These video store cost $12. You have a coupon for $2 off the total purchase. Which expression represents the total cost of *d* videos?

A 2 − 12*d* **B** 12*d* − 2*d* **C** 12*d* − 2 **D** 12 − 2*d*

154