

Objectives:

- Students will divide positive integers from the multiplication table without remainders, as evidenced by them passing one-minute quizzes.
- Students will evaluate expressions according to order of operations, as evidenced by them completing a warm-up worksheet where they do so.
- Students will add integers, subtract integers, use order of operations, compute exponents, solve equations $ab = x$, solve equations $a/x = c$, and solve equations using inverse operations, as evidenced by them completing an in-class/homework packet where they do so.

Materials:

- “Warm-up 4-6b” for each student
- “Minute Quiz 4-6b” for each student
- “Math Riddles Packet” for each student

Do Now:

- Park backpacks, jackets, sweaters
- Work on warm-up
- Get ready for minute quiz

Homework:

- Four pages of Math Riddles Packet (extra pages = extra credit)
- 5 hours of ALEKS due Friday

Time	Activity
Before Bell	<p align="center">AGENDA, DO NOW, AND WARM-UPS</p> <p>Write the agenda, homework, and do now on the board. As students enter the classroom, shake their hands, give them a copy of the warm-up, and direct them to follow the directions listed for the “do now.”</p>
10 min	<p align="center">MINUTE QUIZ, WARM-UPS, ATTENDANCE, AND HOMEWORK COLLECTION</p> <p>Minute Quiz and Warm-up When the bell rings, quickly go around and put the minute quiz on each student’s desk, face down. Then, start everyone on the quiz at the same time and give everyone one minute. When students finish the minute quiz, they should work on the warm-up. After the minute is over, have a student collect the minute quizzes and give them to the teacher’s aide (TA) to grade.</p> <p>Attendance and Collect Homework While students work on the warm-up, take attendance and have the TA collect homework & stamp homework checkers.</p>
5 min	<p align="center">ANNOUNCEMENTS</p> <p>Explain to students that you have two announcements to make.</p> <p>5 Hours of ALEKS due Friday The whole school year, students have been working on a computer program called ALEKS (pronounced “Alex”). So, they know what it is. Say, <i>The first announcement has to do with ALEKS.</i> Point to the homework assignment that’s written on the board and ask, <i>How many hours of ALEKS do you need by Friday?</i> [Five.]</p> <p>Lesson Overview Say, <i>The second announcement has to do with today’s activity/lesson.</i> Explain to students that, for class today, they will be given a packet of math riddles. Show students the packet. There are eight pages. Students only have to do four pages for homework. So, if they finish all eight pages, they get double the points!</p>
60 min	<p align="center">MATH RIDDLES PACKET</p> <p>From your announcements, students should know what to work on. Give them the packets to work</p>

IMPORTANT →

Lesson 4-6b – Math Riddles (Substitute)

	<p>on. This is their task for the whole period.</p> <p>If students ask whether they can work on ALEKS when they finish with the packet, tell them “No.” They cannot work on ALEKS because the last time we had a substitute, some keys from the laptops went missing.</p>
5 min	<p style="text-align: center;">CLEAN UP</p> <p>Students should pack up, sit in their seats, and wait to be dismissed by the teacher (not by the bell).</p>

Problems?

If there are any problems, you have two options:

- Call the front desk at extension **221** and ask for an administrator to be sent to the classroom (room 10).
- Give the student a referral, and send him/her to the office. (There are orange referrals on my desk).
When doing this, you should call the front office (extension 221) so that the student makes it there.

Solve the following division problems. You have exactly one minute!

$35 \div 5 =$

$50 \div 5 =$

$16 \div 2 =$

$28 \div 4 =$

$44 \div 4 =$

$8 \div 2 =$

$84 \div 12 =$

$36 \div 6 =$

$84 \div 7 =$

$90 \div 9 =$

$20 \div 4 =$

$40 \div 4 =$

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$35 \div 5 =$

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$84 \div 7 =$

$90 \div 9 =$

$20 \div 4 =$

$40 \div 4 =$

Solve the following division problems. You have exactly one minute!

$10 \div 2 =$

$32 \div 8 =$

$7 \div 7 =$

$7 \div 1 =$

$10 \div 2 =$

$42 \div 6 =$

$22 \div 2 =$

$12 \div 4 =$

$54 \div 6 =$

$24 \div 12 =$

$108 \div 9 =$

$4 \div 4 =$

Solve the following division problems. You have exactly one minute!

$10 \div 2 =$

$32 \div 8 =$

$7 \div 7 =$

$7 \div 1 =$

$10 \div 2 =$

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$54 \div 6 =$

$24 \div 12 =$

$108 \div 9 =$

$4 \div 4 =$

Solve the following division problems. You have exactly one minute!

$10 \div 2 =$

$32 \div 8 =$

$7 \div 7 =$

$7 \div 1 =$

$10 \div 2 =$

$42 \div 6 =$

$22 \div 2 =$

$12 \div 4 =$

$54 \div 6 =$

$24 \div 12 =$

$108 \div 9 =$

$4 \div 4 =$

Solve the following division problems. You have exactly one minute!

$77 \div 7 =$

$15 \div 5 =$

$1 \div 1 =$

$22 \div 2 =$

$36 \div 6 =$

$120 \div 10 =$

$12 \div 6 =$

$96 \div 12 =$

$5 \div 5 =$

$27 \div 9 =$

$96 \div 12 =$

$4 \div 2 =$

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$15 \div 5 =$

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$22 \div 2 =$

$36 \div 6 =$

$120 \div 10 =$

$12 \div 6 =$

$96 \div 12 =$

$5 \div 5 =$

$27 \div 9 =$

$96 \div 12 =$

$4 \div 2 =$

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$96 \div 12 =$

$5 \div 5 =$

$27 \div 9 =$

$96 \div 12 =$

$4 \div 2 =$

Evaluate the following expressions according to PEMDAS:

Parenthesis
Exponents
Multiply and **D**ivide from Left-to-Right
Add and **S**ubtract from Left-to-Right

1. $4 + 2 \cdot 3$

2. $4 + 3^2$

3. $2 + (3 + 4)^2$

4. $2 + 6 \div 3$

5. $40 - 2(2 + 3)$

6. $3(9 - 3) + (12 - 8)$

7. $3 + 2 \cdot [1 + (5 - 1) \cdot 2]$

Evaluate the following expressions according to PEMDAS:

Parenthesis
Exponents
Multiply and **D**ivide from Left-to-Right
Add and **S**ubtract from Left-to-Right

1. $4 + 2 \cdot 3$

2. $4 + 3^2$

3. $2 + (3 + 4)^2$

4. $2 + 6 \div 3$

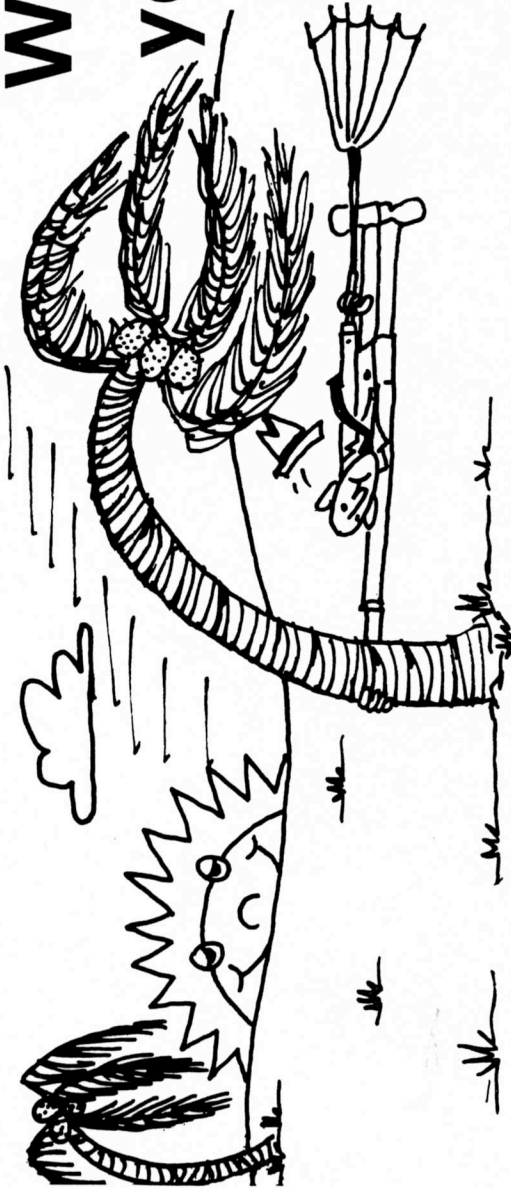
5. $40 - 2(2 + 3)$

6. $3(9 - 3) + (12 - 8)$

7. $3 + 2 \cdot [1 + (5 - 1) \cdot 2]$

NAME _____

What colors would you paint the sun and the wind?



DIRECTIONS: Solve each equation below and then find your answer in the decoder. Each time your answer appears in the decoder write the letter of the problem above it.

1. $9 + 7 =$ _____ (h)

2. $-7 + (-5) =$ _____ (o)

3. $-5 + (-13) =$ _____ (i)

4. $7 + 41 =$ _____ (t)

5. $88 + (-71) =$ _____ (n)

6. $32 + (-48) =$ _____ (a)

7. $64 + (-42) =$ _____ (w)

8. $-21 + 50 =$ _____ (e)

9. $-287 + 300 =$ _____ (u)

10. $-13 + (-11) =$ _____ (b)

11. $62 + (-64) =$ _____ (d)

12. $-7 + (-3) =$ _____ (s)

13. $-12 + (-5) =$ _____ (r)

14. $33 + (-37) =$ _____ (l)

48 16 29

-10

13

17

-17

-10

29

-16

17

-2

48 16 29

22

-18

17

-2

-24

-4

13

29

Why do golfers wear two shirts when they play golf?

DIRECTIONS: Solve each equation below, and then find your answer in the decoder. Each time your answer appears in the decoder, write the letter of the problem above it.

1. $-5 - 2 = \underline{\quad} l$

2. $-5 - (-8) = \underline{\quad} h$

3. $-15 - 24 = \underline{\quad} a$

4. $-34 - (-20) = \underline{\quad} y$

5. $-17 - (-17) = \underline{\quad} g$

6. $-17 - (-2) = \underline{\quad} s$

7. $34 - (-19) = \underline{\quad} t$

8. $-15 - 23 = \underline{\quad} i$

9. $7 - 16 = \underline{\quad} c$

10. $-42 - 38 = \underline{\quad} e$

11. $-17 - (-18) = \underline{\quad} n$

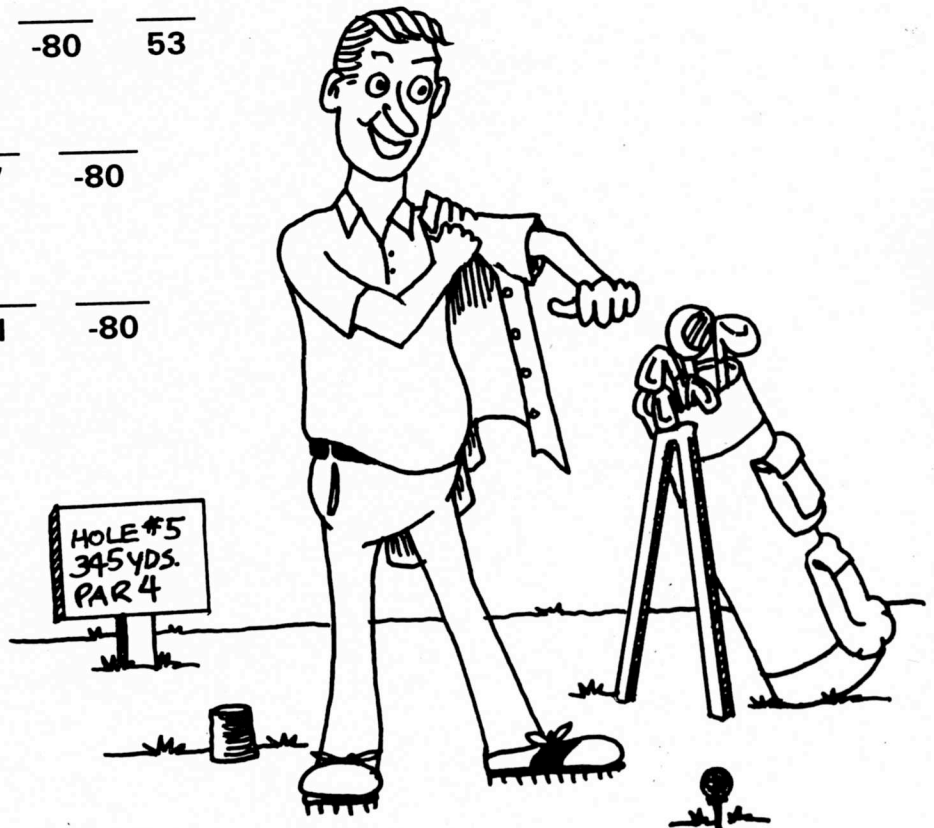
12. $29 - 32 = \underline{\quad} o$

$\frac{-38}{\quad}$	$\frac{1}{\quad}$	$\frac{-9}{\quad}$	$\frac{-39}{\quad}$	$\frac{-15}{\quad}$	$\frac{-80}{\quad}$
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$\frac{53}{\quad}$	$\frac{3}{\quad}$	$\frac{-80}{\quad}$	$\frac{-14}{\quad}$	$\frac{0}{\quad}$	$\frac{-80}{\quad}$	$\frac{53}{\quad}$
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$\frac{-39}{\quad}$	$\frac{3}{\quad}$	$\frac{-3}{\quad}$	$\frac{-7}{\quad}$	$\frac{-80}{\quad}$
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$\frac{-38}{\quad}$	$\frac{1}{\quad}$	$\frac{-3}{\quad}$	$\frac{1}{\quad}$	$\frac{-80}{\quad}$
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What did the man say when he found he was going bald?



DIRECTIONS: Solve each equation below. Then find your answer in the decoder. Each time your answer appears in the decoder, write the letter of the problem above it.

Solve each equation

1. $3 + (-13) + (-15) = d$ ($d = \underline{\quad}$)

2. $4 + (-10) + 22 = i$ ($i = \underline{\quad}$)

3. $47 + 32 + (-15) = g$ ($g = \underline{\quad}$)

4. $49 + (-18) + (-23) = r$ ($r = \underline{\quad}$)

5. $-3 + (-16) + 28 = n$ ($n = \underline{\quad}$)

6. $-3 + 12 + (-13) = a$ ($a = \underline{\quad}$)

7. $7 + 42 + (-17) = m$ ($m = \underline{\quad}$)

8. $14 + (-20) + 39 = w$ ($w = \underline{\quad}$)

9. $e = -12 + 9 + (-3) + 6$ ($e = \underline{\quad}$)

10. $y = 98 + (-99) + 99 + (-97)$ ($y = \underline{\quad}$)

11. $h = -69 + 32 + (-7) + (-16)$ ($h = \underline{\quad}$)

12. $t = 28 + (-56) + 32 + (-74)$ ($t = \underline{\quad}$)

13. $o = -11 + 8 + (-7) + 7$ ($o = \underline{\quad}$)

$\frac{\quad}{-60}$ $\frac{\quad}{-4}$ $\frac{\quad}{16}$ $\frac{\quad}{8}$ $\frac{\quad}{-70}$ $\frac{\quad}{-3}$ $\frac{\quad}{-25}$ $\frac{\quad}{-4}$ $\frac{\quad}{1}$

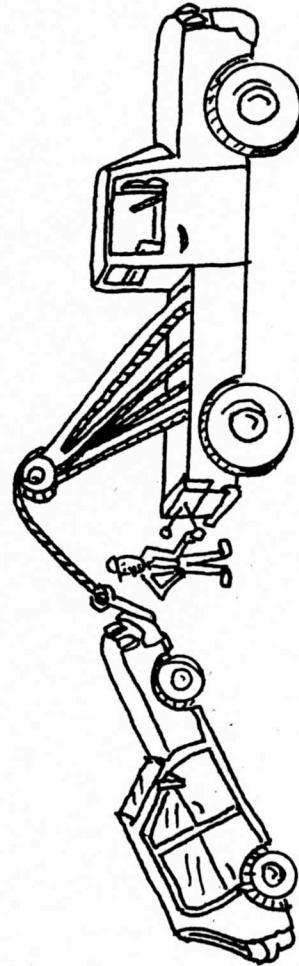
$\frac{\quad}{64}$ $\frac{\quad}{-3}$ $\frac{\quad}{9}$ $\frac{\quad}{0}$ $\frac{\quad}{-70}$ $\frac{\quad}{-3}$ $\frac{\quad}{32}$ $\frac{\quad}{-3}$ $\frac{\quad}{8}$ $\frac{\quad}{8}$ $\frac{\quad}{-3}$ $\frac{\quad}{33}$

Why is it best to call a 24-hour wrecker when your car breaks down?

DIRECTIONS: Find the value of each expression. Then find your answer in the decoder. Each time your answer occurs in the decoder write the letter of the problem above it.

1. $(84 \div 4) \div 3 =$ _____ (w)
3. $72 \div 8 \cdot 4 \div 2 =$ _____ (n)
5. $2[5(4 + 6) - 2] =$ _____ (l)
7. $3[(18 - 3) + 5(5 + 7)] =$ _____ (y)
9. $\frac{37 + 38}{45 - 42} =$ _____ (a)
11. $(8 - 5)(5 + 2) =$ _____ (o)

2. $12 \div 3 + 12 \div 2 =$ _____ (i)
4. $(40 \cdot 2) - (6 \cdot 12) =$ _____ (r)
6. $\frac{86 - 11}{9 + 6} =$ _____ (e)
8. $144 \div 16 \cdot 12 \div 3 =$ _____ (s)
10. $96 \div (12 \cdot 4) \div 2 =$ _____ (h)
12. $4[2(21 - 17) + 3] =$ _____ (t)



44 1 5 225 25 8 5

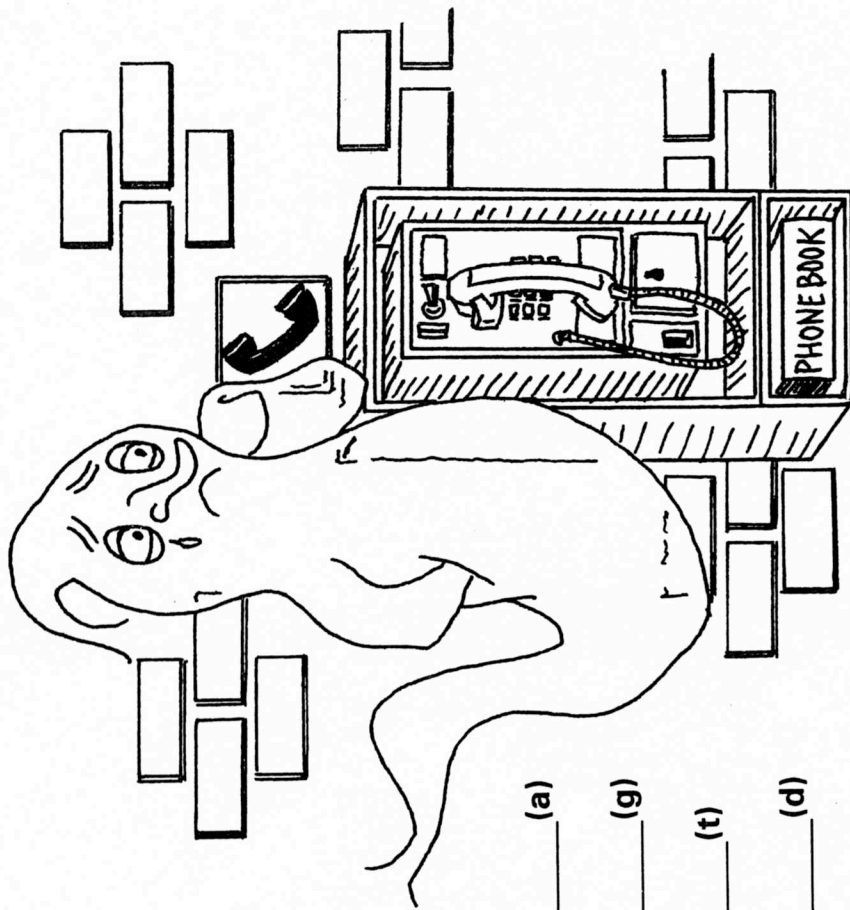
25 96 7 25 225 36 21 18

44 1 5 10 8 44 21 7 36

Why are ghosts lonely all the time?

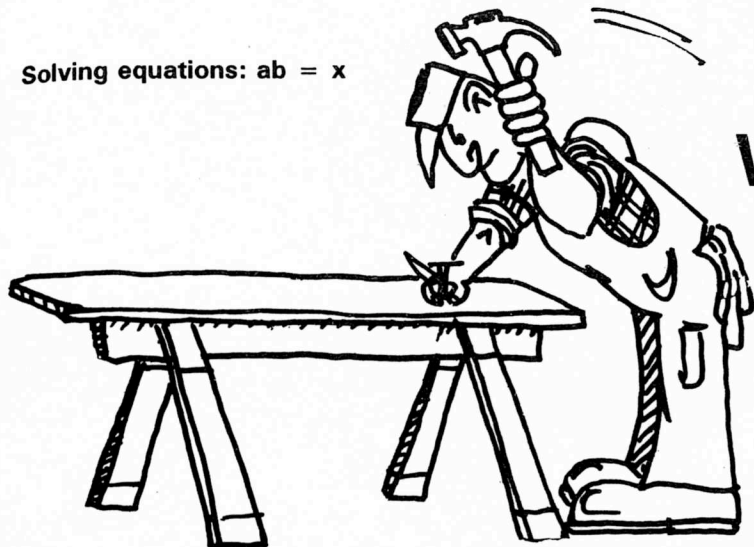
DIRECTIONS: Determine the value of each number named by the whole number and its exponent. Find your answer in the decoder, and each time your answer occurs in the decoder write the letter of the problem above it.

1. $2^4 =$ _____ (v) 7. $11^2 =$ _____ (a)
2. $3^3 =$ _____ (o) 8. $10^4 =$ _____ (g)
3. $8^4 =$ _____ (h) 9. $5^4 =$ _____ (t)
4. $1^5 =$ _____ (e) 10. $12^3 =$ _____ (d)
5. $6^3 =$ _____ (y) 11. $2^6 =$ _____ (b)
6. $7^3 =$ _____ (n)



625	4,096	1	216	4,096	121	16	1	343	625	10,000	27	625
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121	343	216	64	27	1,728	216
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What is the favorite dessert of boxers and carpenters?

DIRECTIONS: Solve each equation below. Then find your answer in the decoder. Each time your answer occurs in the decoder, write the letter of the problem above it.

1. $-8h = 64$ $h =$ _____

2. $-3n = -36$ $n =$ _____

3. $165 = -11t$ $t =$ _____

4. $4a = -64$ $a =$ _____

5. $-7u = 91$ $u =$ _____

6. $-14e = -182$ $e =$ _____

7. $17d = 136$ $d =$ _____

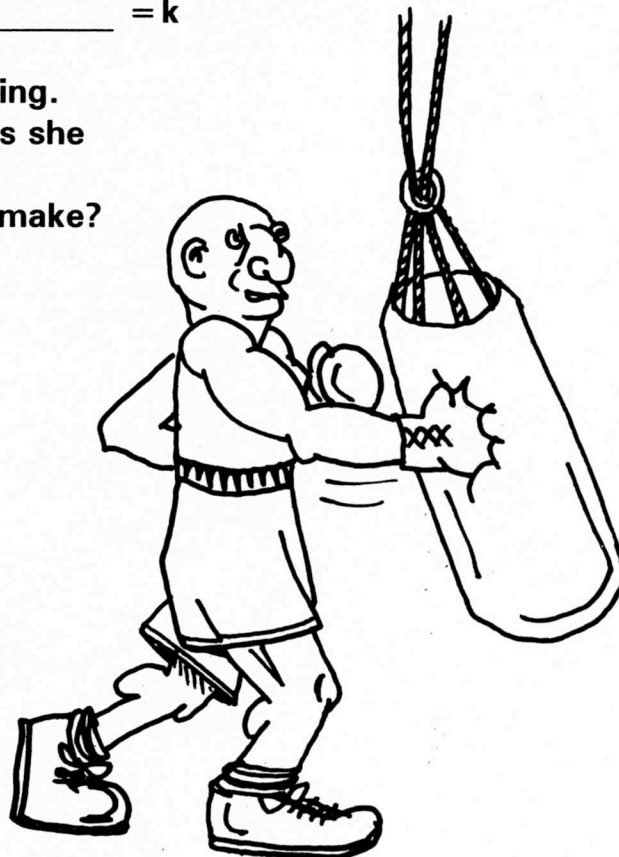
8. $-60 = -15o$ $o =$ _____

9. $-14c = -98$ $c =$ _____

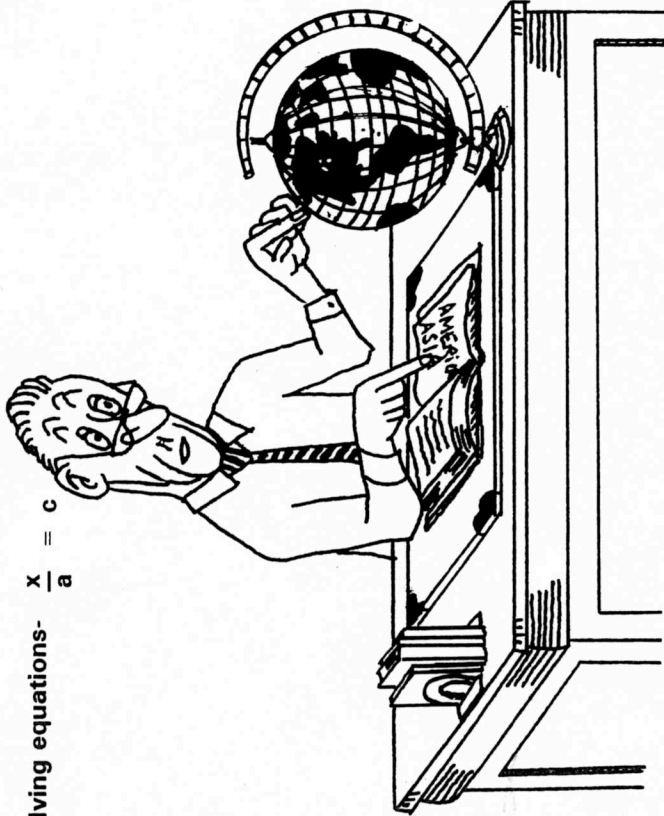
10. If Jon weighs four times as much as his baby brother, and his brother weighs 21 pounds, how much does Jon weigh? _____ = k

11. Morgan makes \$15.00 per week babysitting. Her older sister makes 5 times as much as she does working as a cashier at the local supermarket. How much does her sister make?
_____ = p

<u> </u> -15	<u> </u> -8	<u> </u> 13			
<u> </u> \$75	<u> </u> 4	<u> </u> -13	<u> </u> 12	<u> </u> 8	
<u> </u> 7	<u> </u> -16	<u> </u> 84	<u> </u> 13		



What is the first part of a geography book called?



DIRECTIONS: Find your answer in the decoder. Each time it occurs in the decoder, write the letter of the problem above it.

1. $21 = f$ (f = _____)

2. $\frac{a}{13} = -15$ (a = _____)

3. $\frac{n}{8} = -32$ (n = _____)

4. $\frac{l}{-46} = 216$ (l = _____)

5. $\frac{o}{-34} = -14$ (o = _____)

6. $-6 = \frac{s}{-8}$ (s = _____)

7. $5 = \frac{i}{18}$ (i = _____)

8. $-24 = \frac{b}{32}$ (b = _____)

9. $-4 = \frac{e}{-5}$ (e = _____)

10. Timothy is training for a marathon. He runs an average of 21 miles per week. Since he has been training, he has run 84 miles. For how many weeks has he been training? (c = _____)

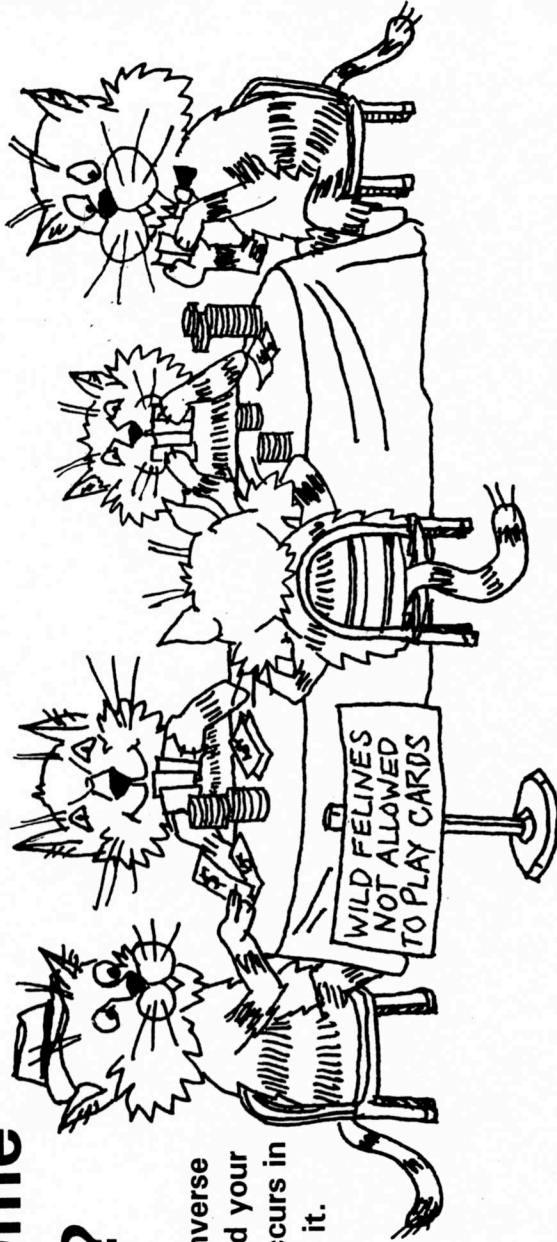
11. For four consecutive hours the temperature dropped 3°F for each hour. What was the total temperature change? (t = _____)

-12	-195	-768	-9936	20	476	-147	4	476	-256	-12	90	-256	20	-256	-12	48
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NAME _____

Solving equations using inverse operations

Why shouldn't some cats play cards?



DIRECTIONS: Solve each equation by using the inverse operation. Use a calculator where necessary. Find your answer in the decoder. Each time your answer occurs in the decoder, write the letter of the problem above it.

1. $3 + g = 13$ (g = _____)

2. $34 = a \cdot 2$ (a = _____)

3. $\frac{h}{15} = 10$ (h = _____)

4. $15 = d - 18$ (d = _____)

5. $132 = m \times 11$ (m = _____)

6. $150 = 210$ (o = _____)

7. $\frac{i}{2.3} = 6.7$ (i = _____)

8. $2.5e = 40$ (e = _____)

9. $180 = t - 35$ (t = _____)

10. $90 = 3l$ (l = _____)

11. $7.2 = 0.36n$ (n = _____)

12. $\frac{b}{5} = 31$ (b = _____)

13. $4c = 60$ (c = _____)

14	20	16	12	15.41	10	150	215	16	155	16	17	30	15.41	14	20
17	20	33	14	20	16	12	15.41	10	150	215	16	155	16	17	30
17	20	15	150	16	16	215	17	150	17	150	17	150	17	150	17

ANSWER KEY

- Page 1 1. 18 2. 22 3. \$9 4. \$8 5. 4,260 6. 102 7. 60 8. 0.9 9. 14 10. 15 11. 68 (A smile that bursts)
- Page 2 1. 7 2. 10 3. 18 4. 8 5. 96 6. 5 7. 225 8. 36 9. 25 10. 1 11. 21 12. 44 (They are always on their tows)
- Page 3 1. 10 2. 17 3. 150 4. 33 5. 12 6. 14 7. 15.41 8. 16 9. 215 10. 30 11. 20 12. 155 13. 15
(One might be a lion and one might be a cheetah)
- Page 4 1. 16 2. -12 3. -18 4. 48 5. 17 6. -16 7. 22 8. 29 9. 13 10. -24 11. -2 12. -10 13. -17 14. -4
(The sun rose and the wind blue)
- Page 5 1. -25 2. 16 3. 64 4. 8 5. 9 6. -4 7. 32 8. 33 9. 0 10. 1 11. -60 12. -70 13. -3
(Hair today gone tomorrow)
- Page 6 1. -7 2. 3 3. -39 4. -14 5. 0 6. -15 7. 53 8. -38 9. -9 10. -80 11. 1 12. -3 (In case they get a hole in one)
- Page 7 Alabama- 139° Alaska- 180° California- 179° Georgia- 129° Montana- 187° Nevada- 172° New York- 160° Tennessee- 145°
Utah- 186° Hawaii- 88° 1. Montana 2. Utah 3. Hawaii 4. Alaska 5. California
- Page 8 1. 43, 52, 61 2. 13, 6, -1 3. -19, -27, -35 4. 28, 39, 52 5. 8.79, 10.13, 11.47 6. -70, -55, -40 7. $5\frac{7}{12}$, $6\frac{1}{3}$,
 $7\frac{1}{12}$ 8. 1.82, 1.76, 1.7 9. 0, 4, 8 10. 243, 729, 2,187 11. $-2\frac{1}{4}$, $-2\frac{7}{12}$, $-2\frac{11}{12}$ 12. 32, 64, 128 13. -1,024, 4,096
-16,384
- Page 9 1. -162 2. -192 3. 140 4. -850 5. 77 6. -512 7. 72 8. 32 9. -210 10. 84 11. -126 12. 90 13. -108
(Then it would be a foot)
- Page 10 1. -12 2. 7 3. 49 4. -8 5. -5 6. -7 7. 4 8. -16 9. 20 10. 6 11. -18 (Out of sight out of mind)
- Page 11 1. -9 2. -130 3. -5 4. 24 5. 120 6. -4 7. 136 8. 2 9. 8 10. -8 11. -6 12. -162 13. 20
(The Holy Roman Empire)
- Page 12 1. 23 2. -11 3. 15 4. -59 5. \$8,291 6. \$618 7. -37 8. 43 9. -20 10. 21 11. -27 12. -46 13. -26
14. -75 (Both are in the middle of water)
- Page 13 1. 48 2. 19 3. -4 4. -5 5. -23 6. -85 7. -37 8. 34 9. 58 10. 35 11. \$113 13. \$375 14. -350
(I have his Gettysburg Address right here)
- Page 14 1. -8 2. 12 3. -15 4. -16 5. -13 6. 13 7. 8 8. 4 9. 7 10. 84 11. \$75 (The pound cake)
- Page 15 1. -147 2. -195 3. -256 4. -9936 5. 476 6. 48 7. 90 8. -768 9. 20 10. 4 11. -12 (Table of continents)
- Page 16 1. 16 2. 27 3. 4,096 4. 1 5. 216 6. 343 7. 121 8. 10,000 9. 625 10. 1,728 11. 64
(They haven't got any body)
- Page 17 1. 100,000 2. 1,000,000 3. $-27b^4c^3$ 4. $42w^5z^5$ 5. $18w^2z^3$ 6. b^2c^3 7. $6w^3z^5$ 8. 14,400 9. 512 10. b^8c^2
11. w^{10} 12. $4z^6$ 13. 1,000 (When you are over the hump)
- Page 18 1. $\frac{1}{4bc}$ 2. $\frac{b}{-3c}$ 3. $\frac{3}{4c}$ 4. b^2 5. $\frac{1}{2a}$ 6. $\frac{-5b^2}{2}$ 7. bc^4 8. b^2c 9. $2c^2$ (They had a chute out)
- Page 19 FACTORS MAY VARY. 1. composite 2. composite 3. composite 4. composite 5. prime 6. prime 7. composite
8. prime 9. composite 10. prime 11. composite 12. prime 13. prime 14. composite 15. prime 16. composite
17. composite 18. prime 19. composite 20. composite
- Page 20 ORDER OF FACTORS MAY VARY. 1. $-1 \times 5 \times 2 \times 11$ 2. $11 \times 13 \times r \times r \times s$ 3. $-1 \times 3 \times 2 \times 2 \times 3 \times 2 \times 2$
4. $-1 \times 2 \times 2 \times 2 \times 2 \times t \times t \times s \times s$ 5. $5 \times 5 \times 5 \times 2 \times 2 \times b \times c \times c$ 6. $-1 \times 5 \times 7 \times 2 \times 2$ 7. $3 \times 17 \times j \times j \times k$
8. $-1 \times 5 \times 5 \times 5 \times 5 \times a \times a \times b \times b$ 9. $2 \times 7 \times 7$ 10. $-1 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 5 \times 5 \times g \times g$ 11. $13 \times 13 \times 3 \times 3$
12. $5 \times 5 \times 5 \times 5 \times 2 \times 2 \times 2 \times 2$
- Page 21 1. 1 2. x 3. 20 4. 30x 5. 5 6. 5z 7. 12 8. 3 9. 16 10. 60p 11. 36 12. 7 13. 33
(Thanks I will never part with this)
- Page 22 1. 35 2. 60k 3. 36 4. $30p^2$ 5. $60p^2$ 6. 108 7. $105j^2$ 8. 48j 9. 51 10. $84k^2$ 11. 100 12. $120k^2$
(Their Bach is worse than their bite)
- Page 23 1. 15, 30, $\frac{1}{2}$ 2. 12, 72, $\frac{2}{3}$ 3. 2, 1,240, $\frac{20}{31}$ 4. 6, 36, $\frac{2}{5}$ 5. 18, 216, $\frac{3}{4}$ 6. 8, 960, $\frac{8}{15}$ 7. 14, 336, $\frac{3}{8}$ 8. 8, 1216, $\frac{8}{15}$
9. 8, 168, $\frac{3}{7}$ 10. 3, 60, $\frac{4}{5}$ 11. 4, 180, $\frac{5}{9}$ 12. 4, 48, $\frac{3}{4}$ 13. 5, 75, $\frac{3}{5}$ 14. 4, 160, $\frac{5}{8}$ 15. 9, 54, $\frac{2}{3}$ 16. 10, 240, $\frac{3}{8}$
17. 11, 132, $\frac{3}{4}$ 18. 4, 60, $\frac{3}{5}$
- Page 24 1. 29 2. 16 3. 99 4. 49 5. 60 6. 2 7. 12 8. 66 9. 97 10. 54 11. 11 12. 5 13. 18 14. 72
15. 96 16. 37 17. 64 (butterfly, brown rat, rhinoceros beetle, anaconda)