Worksheet 12-05 Equations 1

Teacher reference: Mostly one-step equations

Solve each of the following equations.

1 $x + 7 = 12$

2 $r + 9 = 20$

3 $y + 5 = 10$

4 $r - 7 = 1$

5 $t - 1 = 3$

6 $z - 8 = 2$

7 $5m = 15$

8 $3q = 21$

9 $7p = 35$

10 $\frac{n}{3} = 10$

11 $\frac{s}{6} = 3$

12 $\frac{b}{8} = 10$

13 $u + 6 = 9$

14 $k - 4 = 4$

15 $2t = 8$

16 $b + 5 = 4$

17 $e - 10 = -3$

18 $a - 5 = 0$

19 $h + 3 = 0$

20 $2u = 17$

21 $\frac{y}{5} = -2$

22 $4w = 26$

23 $r - 6 = -6$

24 $d + 1 = -3$

25 $\frac{e}{-2} = 4$

26 $f + 3 = -4$

27 $3p = 14$

28 $3 + c = 1$

29 $g - 4 = -5$

30 $\frac{w}{-4} = 6$

31 $-p = -2$

32 $\frac{y}{-5} = 4$

33 $-3v = -30$

34 $8 - m = 8$

35 $-x = 6$

36 $\frac{d}{-4} = -5$

37 $2x + 4 = 10$

38 $3k - 5 = 7$

39 $\frac{r-1}{6} = 3$

40 $\frac{p+7}{2} = 9$

Mixed answers

3	4	7	-8	3	5	5	80	-20	19	-2
11	2	-7	8	5	4	-10	-24	-6	$4\frac{2}{3}$	
8	10	20	-3	-1	7	30	$6\frac{1}{2}$	5	10	
-4	18	$8\frac{1}{2}$	4	-2	-1	3	0	0	11	

© Nelson Australia Pty Ltd 2004

Worksheet 12-06 Equations 2

Teacher reference: Mixed equations (Stage 4)

Solve each of the following equations.

1 $3x + 8 = 35$

2 $2n + 10 = 26$

3 $4a - 5 = 13$

4 $-3u + 4 = 10$

5 $5 + 4p = -11$

6 $6c - 7 = 26$

7 $\frac{d}{4} - 7 = 3$

8 $\frac{k}{3} + 6 = 8$

9 $\frac{6d}{5} = 18$

10 $\frac{3b}{8} = -21$

11 $-2m - 3 = -6$

12 $11 - 4h = 19$

13 $3(x + 6) = 12$

14 $\frac{y - 9}{2} = -6$

15 $13 - 3t = 4$

16 $\frac{4d - 4}{5} = 3$

17 $8 - 2i = 17$

18 $6x + 6 = 3x + 27$

19 $2(x + 8) = 10$

20 $9q - 20 = 4q + 35$

21 $\frac{2r}{5} + 1 = 7$

22 $2(2s - 3) = 14$

23 $6(4v - 3) = 66$

24 $\frac{2m + 6}{4} = -2$

25 $5(x - 2) = -40$

26 $3b - 8 = 7 - 2b$

27 $-5t + 1 = t + 25$

28 $12 - 9w = 6 - 8w$

29 $3(f + 4) = f - 6$

30 $4(2n - 5) = 3n + 2$

Mixed answers

11	-4	-2	-3	$3\frac{1}{2}$	-2	-56	-2	$4\frac{3}{4}$	-9	6
15	$4\frac{2}{5}$	5	-7	-4	40	$-4\frac{1}{2}$	9	3	3	
-3	$1\frac{1}{2}$	6	7	-7	15	$5\frac{1}{2}$	-6	8	$4\frac{1}{2}$	

© Nelson Australia Pty Ltd 2004

Worksheet 12-07 Equations 3 (extension)

Teacher reference: Stage 5.2

Solve each of the following equations.

1 $4(2d-7)=32$

2 $-5(x+4)=20$

3 $\frac{p+8}{3}=-9$

4 $\frac{2k+6}{7}=3$

5 $3(4m+1)=2(5m+8)$

6 $6(2w-5)=7w+19$

7 $-4(y+7)=-y-7$

8 $\frac{3i-4}{5}=-4$

9 $\frac{10-h}{2}=7$

10 $\frac{r+2}{6}-2=-1$

11 $4(e-3)-2(e+4)=6$

12 $6(b+2)+3(b+1)=25$

13 $\frac{n}{5}+\frac{2n}{3}=4$

14 $\frac{z}{2}-\frac{z}{4}=-2$

15 $\frac{4c+3}{2}=\frac{5c-1}{3}$

16 $\frac{10p-20}{4}=\frac{2p+14}{5}$

17 $\frac{4a}{5}-6=-2$

18 $7(g+10)+3(2g-1)=5$

19 $5(2v-4)-2(3v+2)=-4$

20 $\frac{3f}{4}+\frac{f}{3}=8$

Mixed answers

$7\frac{5}{13}$ 5 13 -8 $6\frac{1}{2}$ -7 $9\frac{4}{5}$ $-5\frac{1}{3}$ -8 $1\frac{1}{9}$ $3\frac{5}{7}$

$7\frac{1}{2}$ -35 $-5\frac{1}{2}$ $4\frac{8}{13}$ 13 $7\frac{1}{2}$ -4 4 $-4\frac{10}{13}$ 5

© Nelson Australia Pty Ltd 2004

Worksheet 12-08 Equation problems

Read each problem carefully. Write an equation and then solve the problem.

1 Seven more than three times a number is equal to 16. What is the number?

2 Annabella has \$6.60 more than Mark. Together they have \$21.40. How much does each person have?

3 A large screen TV worth \$3240 can be paid off with a deposit of \$300 and 12 equal monthly payments. How much is each payment?

4 Seven less than four times a number is equal to the number plus eight. What is the number?

5 Daniel is 2 years younger than Christina. Together their ages add up to 36. How old is Daniel?

6 The formula for finding the number of toothpicks, t, to build a row of h house shapes is $t = 5h + 1$.

a How many toothpicks are required to build 16 houses?

b How many houses can be built with 56 toothpicks?

7 A rectangle is twice as long as it is wide. If its perimeter is 72 cm, what are its dimensions?

8 An apple has a mass twice that of a banana, and an orange has a mass of 28 g more than a banana. If the mass of all three together is 124 g, what is the mass of each?

9 Evan the taxi driver charges fares according to the formula $C = 0.7d + 3.3$, where d is the distance travelled in kilometres and C is the fare in dollars.

a How much does Evan charge for a 28 km trip?

b Evan charged \$39.70 for a trip. What was the distance travelled?

10 The sum of two consecutive numbers is 65. What are the two numbers?

11 Three more than a number, all divided by 2, is equal to 5. What is the number?

12 Judy wants to make a triangular flower bed with two sides equal and each twice as long as the third side. She has 48 metres of edging. How long will each side be?

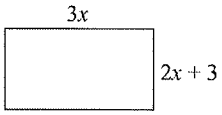
13 Ronan, Chad and Atif have \$116 between them. Ronan has \$12 more than Chad, Atif has \$7 less than Ronan. How much does each boy have?

14 The formula for converting Celsius temperatures (C) to Fahrenheit temperatures (F) is $F = \frac{9C}{5} + 32$.

a Convert 25°C to °F.

b Convert 100.4°F to °C.

15 The perimeter of this rectangle is 80 cm.



a Find x.

b Hence, find the dimensions of this rectangle.

16 Nine more than half of a number is equal to 20. What is the number?

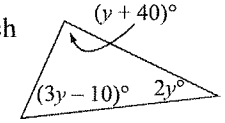
17 Three friends picked strawberries at a farm. The mass of Carlos' basket was only one third of Mina's basket. Pooja's basket was the same mass as Carlos'. Altogether they picked 18 kg of strawberries. How much did each person pick?

18 At the garden shop, Peter bought some lily bulbs at 80 cents each and twice as many tulip bulbs at 60 cents each. If he received \$2 change from a \$20 note, how much of each bulb did he buy?

19 Five less than four times a number is equal to double the number plus one. What is the number?

20 When Lasi was 10, her father was three times her age. Now her father is only twice her age. How old are they now?

21 Find y and the size of each angle in this triangle.



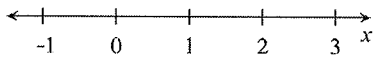
22 The sum of two consecutive *even* numbers is 54. What are the two numbers?

© Nelson Australia Pty Ltd 2004

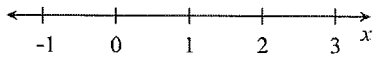
Worksheet 12-09 Graphing inequalities

Show each of the following inequalities on the number lines provided.

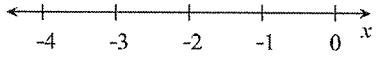
1 $x \geqslant 3$



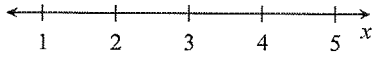
2 $x > 1$



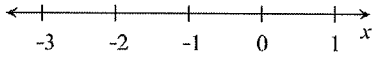
3 $x < -2$



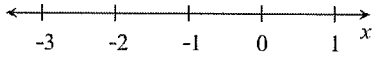
4 $x \leqslant 5$



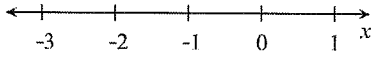
5 $x > -1$



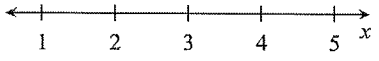
6 $x \geqslant 0$



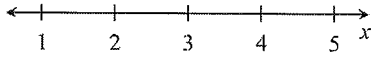
7 $x \leqslant -1$



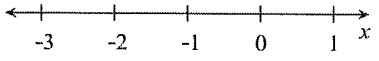
8 $x > 3\frac{1}{2}$



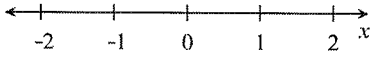
9 $x + 8 \leqslant 12$



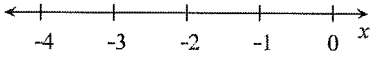
10 $4x + 5 \leqslant -1$



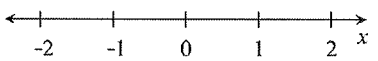
11 $7x - 2 < -2$



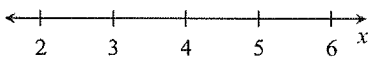
12 $8x \geqslant -24$



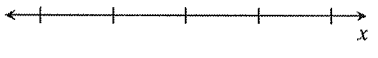
13 $x + 5 < 7$



14 $3x > 15$

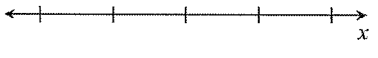


15 $8x - 1 \leqslant 11$

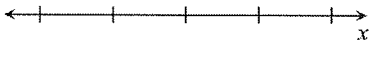


16 $2(x + 5) \geqslant -2$

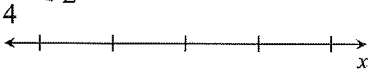
17 $4(x + 4) \geqslant 6$



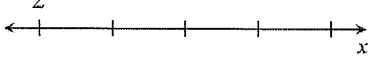
18 $7(x - 4) < -7$



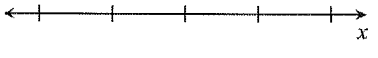
19 $\frac{x}{4} \leqslant 2$



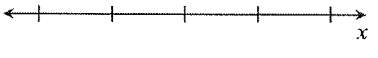
20 $\frac{x + 10}{2} > 3$



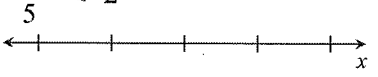
21 $2(2x + 9) < 20$



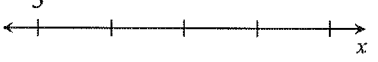
22 $6(x - 7) \geqslant -9$



23 $\frac{x - 6}{5} \leqslant -2$



24 $\frac{2x + 7}{3} > 4$



© Nelson Australia Pty Ltd 2004