

SKE Primary: Foundation Strand

Answers to Exercises

Unit 3 Negative Numbers

3.1 Negative Numbers

1. (a) 2°C (b) -9°C (c) 0°C (d) 1°C (e) -7°C
 (f) -2°C (g) -4°C (h) -4°C (i) -12°C (j) 8°C
2. (a) 1 (b) -5 (c) -2 (d) -4 (e) -9
 (f) -13 (g) -15 (h) 11 (i) -2 (j) 12
3. (a) -10, -7, -5, -2, 3, 6, 8 (b) -3, -2, -1, 0, 1, 3, 8
 (c) -90, -50, -20, -7, 5, 60, 100
4. (a) $4 > 2$ (b) $-6 < -2$ (c) $-3 < 4$ (d) $2 > -4$
 (e) $-6 > -7$ (f) $-6 < -5$ (g) $0 < 1$ (h) $-1 < 0$
5. (a) False (b) True (c) True (d) True (e) False
 (f) False (g) True (h) True (i) False (j) True
6. (Note that the term *integer* is used in question 6.)
 (a) 6 (b) -4 (c) -4, -5, -6 (d) -5, -4, -3, -2, -1
 (e) 0, 1

3.2 Addition and Subtraction

1. (a) 2 (b) 3 (c) 2
 (d) 3 (e) -1 (f) -5
 (g) -5 (h) 0 (i) -3
 (j) -4 (k) -5 (l) 0
2. (a) -2 (b) -2 (c) -2
 (d) -2 (e) -5 (f) -3
 (g) 7 (h) 11 (i) -4
 (j) -4 (k) -5 (l) 0
3. (a) $4 - 3 = 1$ and $4 + (-3) = 1$ (b) $(-2) + 5 = 3$ and $(-2) - (-5) = 3$
 (c) $(-7) + 5 = -2$ and $(-7) - (-5) = -2$ (d) $1 + 5 = 6$ and $1 - (-5) = 6$
 (e) $2 - 5 = -3$ and $2 + (-5) = -3$ (f) $-5 + 5 = 0$ and $(-5) - (-5) = 0$
 (g) $5 - 5 = 0$ and $5 + (-5) = 0$

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4.

+	-4	-2	0	2	4
-3	-7	-5	-3	-1	1
-1	-5	-3	-1	1	3
1	-3	-1	1	3	5
3	-1	1	3	5	7

5.

+	0	1	2	3	4
-5	-5	-4	-3	-2	-1
-4	-4	-3	-2	-1	0
-3	-3	-2	-1	0	1
-2	-2	-1	0	1	2

6. (a) $4 + (-3) = 1$ (b) $3 - 9 = -6$ (c) $(-6) + (-1) = -7$
 (d) $(-5) + 7 = 2$ (e) $(-1) - 7 = -8$ (f) $4 - (-3) = 7$

7. (a) 2, 0, -2, -4, -6 (b) 2, 5, 8, 11, 14
 (c) -1, -6, -11, -16, -21 (d) -9, -11, -13, -15, -17
 (e) -4, 0, 4, 8, 12 (f) -25, -30, -35, -40, -45
 (g) 6, 3, 0, -3, -6 (h) 0, 4, 8, 12, 16

8. 19 °C

9. 42 cm

10. $64 + 284 = 348$ years (There was no year 0, so $284 - (-64)$ *does* give the correct answer.)

3.3 Multiplication and Division

1. (a) -14 (b) -32 (c) 10
 (d) 18 (e) -21 (f) 40
 (g) 32 (h) -18 (i) 14
 (j) 20 (k) 0 (l) -40

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2. (a) 5 (b) -3 (c) -6 (d) -2
 (e) 7 (f) -5 (g) -10 (h) 25
 (i) -40 (j) -2 (k) 10 (l) -6

3. (a)

×	1	2	3	4
-1	-1	-2	-3	-4
-2	-2	-4	-6	-8
-3	-3	-6	-9	-12
-4	-4	-8	-12	-16

(b)

×	1	0	-1	-2	-3
-4	-4	0	4	8	12
-2	-2	0	2	4	6
0	0	0	0	0	0
1	1	0	-1	-2	-3

4. (a)

×	1	-1	3
2	2	-2	6
-2	-2	2	-6
-3	-3	3	-9

(b)

×	-2	-3	-4
-5	10	15	20
-2	4	6	8
3	-6	-9	-12

5. (a) $(-4) \times 5 = -20$ (b) $(-80) \div (-20) = 4$ (c) $16 \times (-2) = -32$
 (d) $(-4) \times (-8) = 32$ (e) $(-4) \times (-3) = 12$ (f) $40 \div (-5) = -8$
 (g) $(-8) \times (-6) = 48$ (h) $(-32) \div (-8) = 4$ (i) $15 \times (-4) = -60$
 (j) $100 \div (-4) = -25$

6. (a) -32, 64, -128
 (b) 32, -64, 128
 (c) 10000, -100000, 1000000
 (d) 81, -243, 729
 (e) -625, 3125, -15625

Multiply each term by -2 to get the next term.

Multiply each term by -2 to get the next term.

Multiply each term by -10 to get the next term.

Multiply each term by -3 to get the next term.

Multiply each term by -5 to get the next term.

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7.

×	1	2	3	5
1	1	2	3	5
2	2	4	6	10
3	3	6	9	15
5	5	10	15	25

×	-1	-2	-3	-5
-1	1	2	3	5
-2	2	4	6	10
-3	3	6	9	15
-5	5	10	15	25

and many other possibilities.

8. (a) 96 (b) -64 (c) 8
(d) -56 (e) 64 (f) -12
9. (a) -6 (b) 15 (c) -14
(d) -72 (e) 12 (f) -7
10. (a) -2 (b) 6 (c) 6
(d) -12 (e) -62 (f) 16
11. (a) 14 (b) -17 (c) 0 (d) -20