Total points = 34

```
Answers
 1. 4x^2 - 49y^2
```

$$= (2x)^{2} - (7y)^{2} \checkmark$$

$$= (2x - 7y)(2x + 7y) \checkmark$$
2. $q^{2} - 100 \checkmark$

2.
$$a^2 - 100 \checkmark$$

= $(a)^2 - (10)^2 \checkmark$

$$= (a-10)(a+10) \checkmark$$
3. $y^8 - 16z^4 \checkmark$

$$= (y^4)^2 - (4z^2)^2 \checkmark$$

$$= (y^4 - 4z^2) (y^4 + 4z^2) \checkmark$$

$$= (y^2 - 2z) (y^2 + 2z) (y^4 + 4z^2) \checkmark$$

$$= (y^2 - 2z)(y^2 + 2z)(y^4 + 4z^2) \checkmark$$
4. $y^4 - 1 \checkmark$

$$= (y^2)^2 - (1)^2 \checkmark$$

$$= (y^{2} - 1) (y^{2} + 1) \checkmark$$

$$= (y - 1) (y + 1) (y^{2} + 1) \checkmark$$
5. $25m^{2} - 9 \checkmark$

$$= (5m)^{2} - (3)^{2} \checkmark$$

$$= (5m-3)(5m+3) \checkmark$$
6. $144x^{6} - 100y^{4} \checkmark$

$$= 4(36x^{6} - 25y^{4}) \checkmark$$

$$= 4[(6x^{3})^{2} - (5y^{2})^{2}] \checkmark$$

$$= 4(6x^{3} - 5y^{2})(6x^{3} + 5y^{2}) \checkmark$$

7.
$$a^{2}b^{4} - 121 \checkmark$$

= $(ab^{2})^{2} - (11)^{2} \checkmark$
= $(ab^{2} - 11) (ab^{2} + 11) \checkmark$
8. $x^{6}y^{2} - 49z^{8} \checkmark$

$$= (x^{3}y)^{2} - (7z^{4})^{2} \checkmark$$

$$= (x^{3}y - 7z^{4})(x^{3}y + 7z^{4}) \checkmark$$
9. $x^{2}y^{4} - 64 \checkmark$

$$= (xy^{2})^{2} - (8)^{2} \checkmark$$

$$= (xy^{2} - 8) (xy^{2} + 8) \checkmark$$
10. $36m^{6} - 81 \checkmark$

$$= 9(4m^{6} - 9) \checkmark$$

$$= 9[(2m^{3})^{2} - (3)^{2}] \checkmark$$

$$= 9(2m^{3} - 3)(2m^{3} + 3) \checkmark$$

$$=9(2m^3-3)(2m^3+3)$$

Activity 1.2.3: Factoring the Difference of Two Squares

Total points = 34

Answers

1.
$$4x^2 - 49y^2 \checkmark$$

= $(2x)^2 - (7y)^2 \checkmark$
= $(2x - 7y)(2x + 7y) \checkmark$
2. $q^2 - 100 \checkmark$

$$= (a)^{2} - (10)^{2} \checkmark$$

$$= (a - 10)(a + 10) \checkmark$$

3.
$$y^8 - 16z^4 \checkmark$$

= $(y^4)^2 - (4z^2)^2 \checkmark$
= $(y^4 - 4z^2) (y^4 + 4z^2) \checkmark$
= $(y^2 - 2z) (y^2 + 2z) (y^4 + 4z^2) \checkmark$

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

$$4. y^{4} - 1 \checkmark$$

$$= (y^{2})^{2} - (1)^{2} \checkmark$$

$$= (y^{2} - 1) (y^{2} + 1) \checkmark$$

$$= (y^{2} - 1) (y^{2} + 1) (y^{2} + 1) \checkmark$$

$$= (y-1)(y+1)(y^2+1) \checkmark$$
5. $25m^2 - 9 \checkmark$

$$= (5m)^2 - (3)^2 \checkmark$$

$$= (5m-3)(5m+3) \checkmark$$

6.
$$14\dot{4}x^6 - 10\dot{0}y^4$$

= $4(36x^6 - 25y^4)$
= $4[(6x^3)^2 - (5y^2)^2]$
= $4(6x^3 - 5y^2)(6x^3 + 5y^2)$

7.
$$a^{2}b^{4} - 121 \checkmark$$

= $(ab^{2})^{2} - (11)^{2} \checkmark$
= $(ab^{2} - 11)(ab^{2} + 11) \checkmark$

8.
$$x^6y^2 - 49z^8$$

= $(x^3y)^2 - (7z^4)^2$
= $(x^3y - 7z^4)(x^3y + 7z^4)$

9.
$$x^2y^4 - 64 \checkmark$$

= $(xy^2)^2 - (8)^2 \checkmark$
= $(xy^2 - 8)(xy^2 + 8) \checkmark$

10.
$$36m^6 - 81 \checkmark$$

= $9(4m^6 - 9) \checkmark$
= $9[(2m^3)^2 - (3)^2] \checkmark$
= $9(2m^3 - 3)(2m^3 + 3) \checkmark$

Activity 1.2.3: Factoring the Difference of Two Squares

Total points = 34

Answers

1.
$$4x^2 - 49y^2 \checkmark$$

= $(2x)^2 - (7y)^2 \checkmark$
= $(2x - 7y)(2x + 7y) \checkmark$
2. $q^2 - 100 \checkmark$

$$= (a)^{2} - (10)^{2} \checkmark$$

$$= (a - 10)(a + 10) \checkmark$$

3.
$$y^8 - 16z^4$$

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

4.
$$y^4 - 1$$

= $(y^2)^2 - (1)^2$
= $(y^2 - 1)(y^2 + 1)$
= $(y - 1)(y + 1)(y^2 + 1)$

5.
$$25m^2 - 9$$

= $(5m)^2 - (3)^2$
= $(5m-3)(5m+3)$

6.
$$144x^6 - 100y^4 \checkmark$$

= $4(36x^6 - 25y^4) \checkmark$
= $4[(6x^3)^2 - (5y^2)^2] \checkmark$

$$= 4 (6x^3 - 5y^2) (6x^3 + 5y^2) \checkmark$$
7. $a^2b^4 - 121 \checkmark$

$$= (ab^2)^2 - (11)^2 \checkmark$$

$$= (ab^{2} - 11) (ab^{2} + 11) \checkmark$$
8. $x^{6}y^{2} - 49z^{8} \checkmark$

$$= (x^{3}y)^{2} - (7z^{4})^{2} \checkmark$$

$$= (x^{3}y - 7z^{4}) (x^{3}y + 7z^{4}) \checkmark$$

9.
$$x^2y^4 - 64$$

= $(xy^2)^2 - (8)^2$
= $(xy^2 - 8)(xy^2 + 8)$

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Activity 1.2.3: Factoring the Difference of Two Squares

Total points = 34

Answers

1.
$$4x^2 - 49y^2$$

= $(2x)^2 - (7y)^2$
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= $(y^4 - 4z^2)(y^4 + 4z^2)$
= $(y^2 - 2z)(y^2 + 2z)(y^4 + 4z^2)$

4.
$$y^4 - 1 \checkmark$$

= $(y^2)^2 - (1)^2 \checkmark$
= $(y^2 - 1)(y^2 + 1) \checkmark$
= $(y - 1)(y + 1)(y^2 + 1) \checkmark$

5.
$$25m^2 - 9 \checkmark$$

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$$= 4 (6x^{3} - 5y^{2}) (6x^{3} + 5y^{2}) \checkmark$$
7. $a^{2}b^{4} - 121 \checkmark$

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